Amey

A90/A937 Laurencekirk Junction Improvement Scheme

Volume 2 – EIAR Addendum: Access to Oatyhill
Appendices
CON2500276 / 00

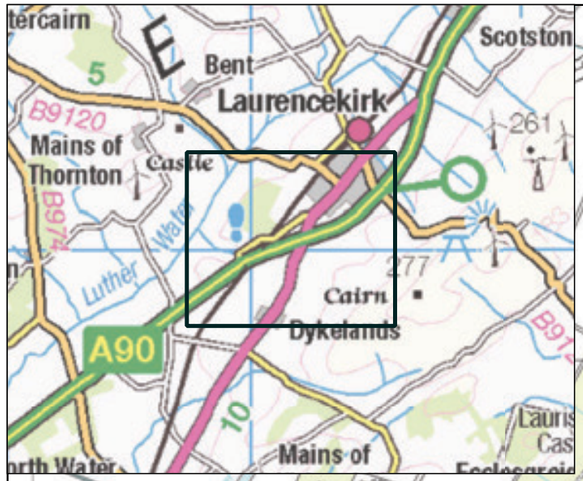
03/04/2024

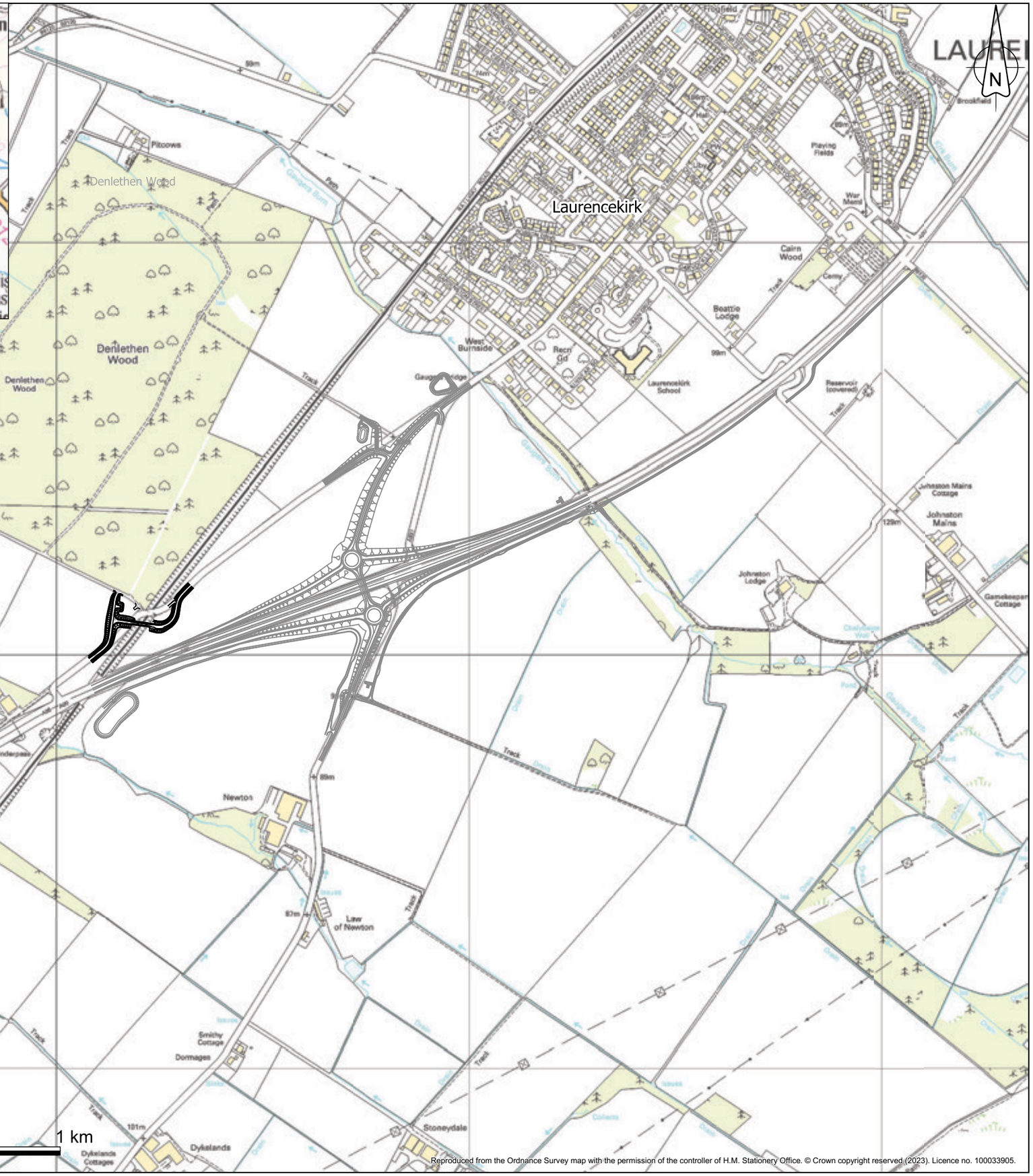
Document Control Sheet

REPORT TITLE:	A90/A937 Laurencekirk Junction Improvement Scheme
REPORT NUMBER:	00
PROJECT NAME:	Volume 2 – EIAR Addendum: Access to Oatyhill Appendices
PROJECT NUMBER:	CON2500276

Index of Appendices

Appendix A: Figures





Legend

- Access to Oatyhill
- Laurencekirk Junction

Rev	Revision Details	Drwn	Chkd	Appd	Date:
P01	Initial design	ES	ACT	AW	07/12/23

Designed:	ES	Date: 07/12/2023
Drawn:	HT	Date: 25/10/2024
Checked:	ACT	Date: 25/10/2024
Approved:	CW	Date: 25/10/2024

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Client : TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title :

Location Plan

Original Drg Size : A3	Scale : 1:10,000
Dimensions : Metres	Page: 1 of 1

Drawing Status : Suitable for Stage Approval	Suitability S4
Figure No : Figure 1.1	
Drawing No : -	Rev P02

Legend

- Access to Oatyhill
- Laurencekirk Junction
- Access to Oatyhill Site Boundary
- Servitude Utility Access
- Laurencekirk Junction Redline Boundary

Rev	Revision Details	Drwn	Chkd	Appd	Date:
P01	Initial design	ES	ACT	AW	07/12/23

Designed:	ES	Date: 07/12/2023
Drawn:	HT	Date: 25/10/2024
Checked:	ACT	Date: 25/10/2024
Approved:	CW	Date: 25/10/2024

Amey

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Client : TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title :

Access to Oatyhill – Site Boundary

Original Drg Size : A3	Scale : 1:5,000
Dimensions : Metres	Page: 1 of 1

Drawing Status :	Suitability
Suitable for Stage Approval	S4

Figure No :
Figure 1.2

Drawing No :	Rev
-	P02

Legend

Access to Oatyhill

Rev	Revision Details	Drwn	Chkd	Appd	Date:
01	Initial design	ES	ACT	AW	07/12/23

Designed:	ES	Date: 25/10/2024
Drawn:	HT	Date: 25/10/2024
Checked:	ACT	Date: 25/10/2024
Approved:	CW	Date: 25/10/2024

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Client : TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title :

Access to Oatyhill – Plan Layout

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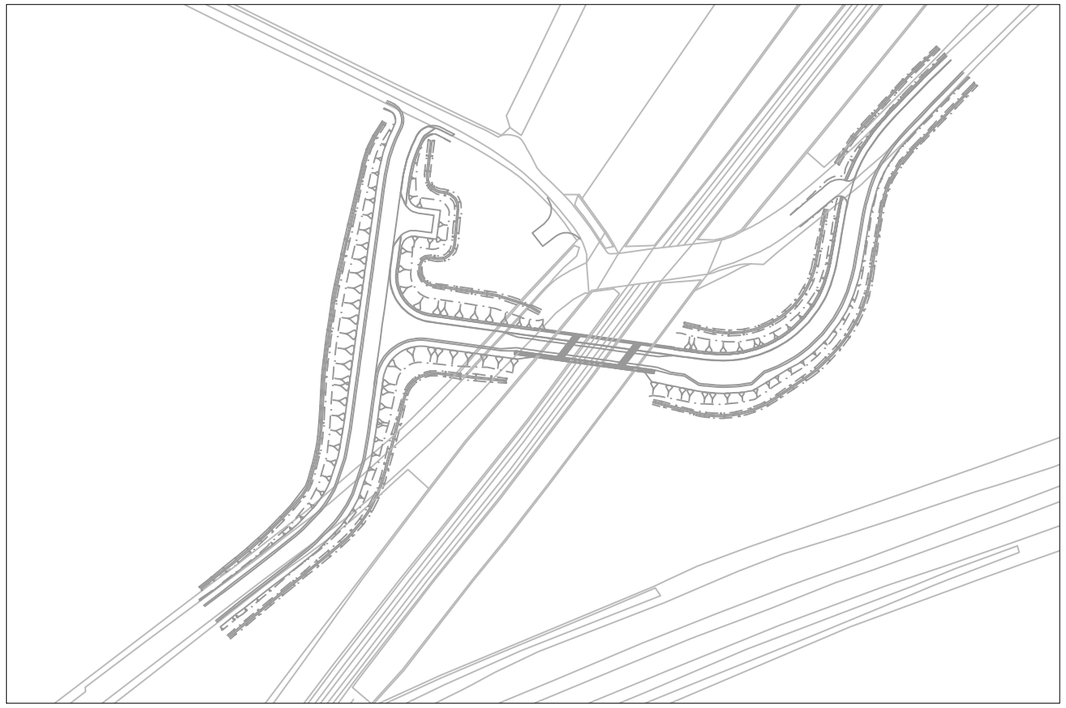
Dimensions : Metres	Page: 1 of 1

Drawing Status :	Suitability
Suitable for Stage Approval	S4

Figure No :
Figure 1.3

Drawing No :	Rev
-	P02



Plan of Oatyhill Bridge
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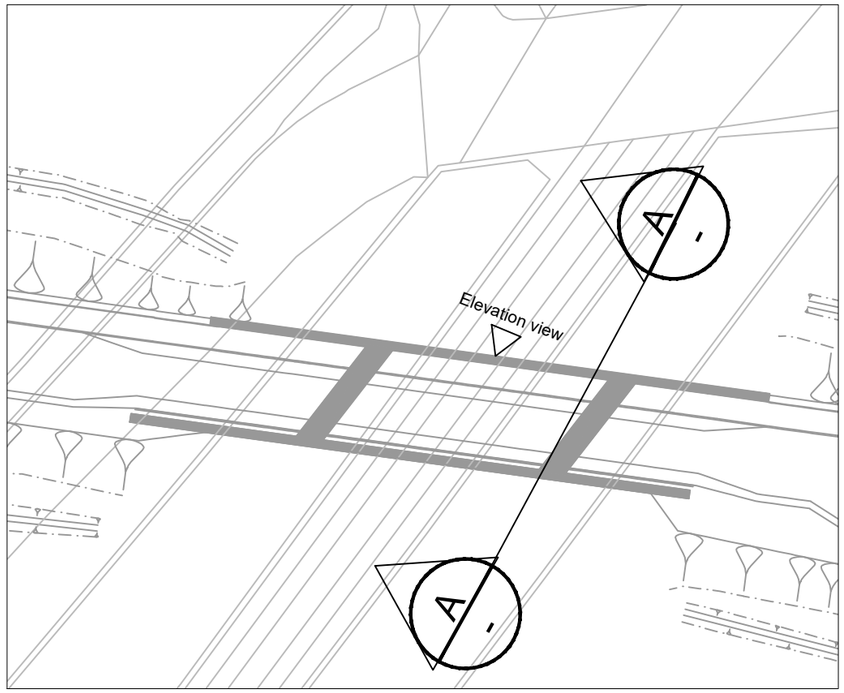

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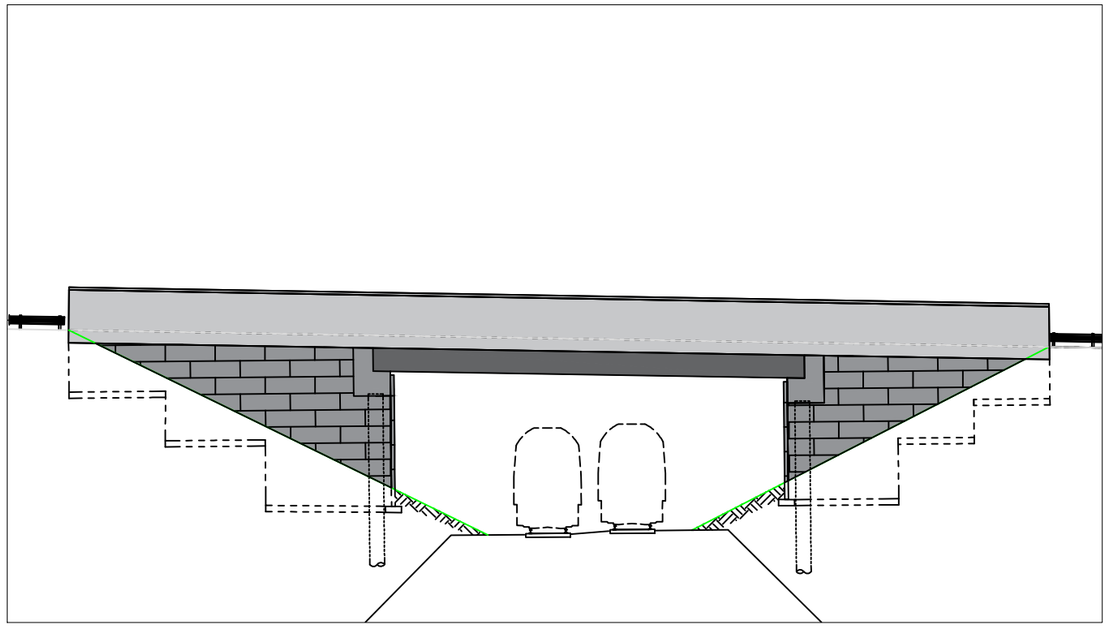

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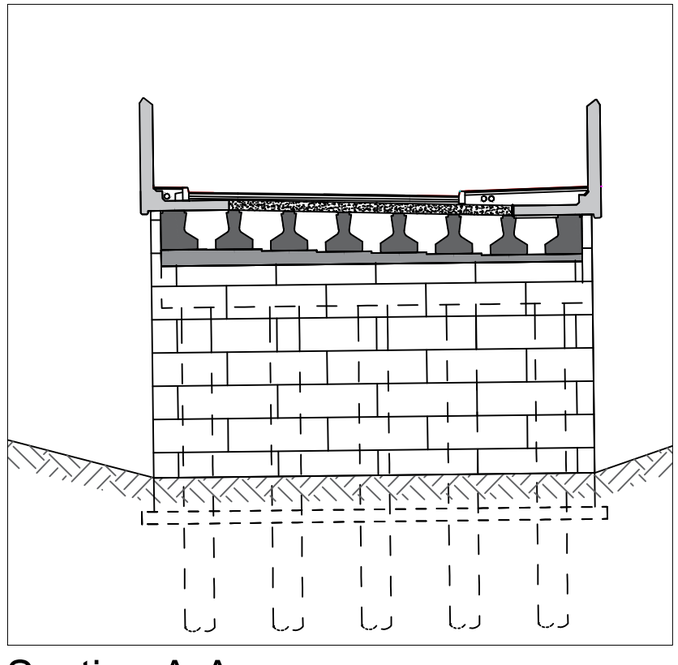

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P01	Minor updates	ES	PK	AW	11/12/23

Designed:	-	Date: .
Drawn:	ACT	Date: 28/10/24
Snr Tech Check:	MY	Date: 28/10/24
Checked:	PK	Date: 28/10/24
Approved:	AW	Date: 28/10/24

Amey
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Client
TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

Project Name
Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title
Proposed Oatyhill Bridge General Arrangement

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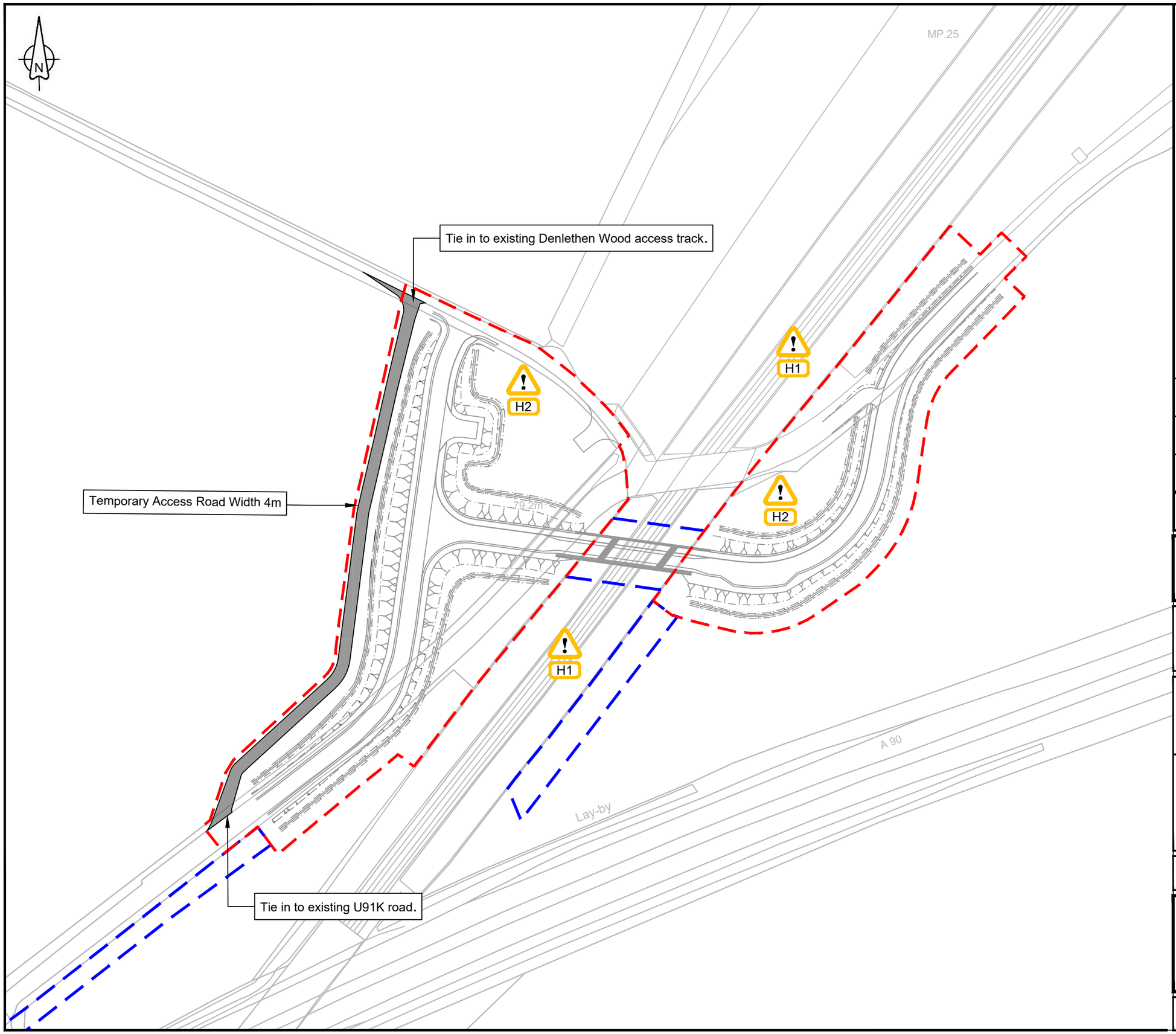
Dimensions : -	

Drawing Status : Authorised and Accepted	Suitability A1
Figure No : Figure 1.4	
Drawing No : -	Rev C01



RESIDUAL DESIGN HAZARDS

(The following information has been collected from Preconstruction Information and the Amey CDM Hazard Management Process.)

1. H1 indicates hazard arising from work undertaken near an active railway line.
2. H2 indicates underground utilities.(Depth and Loaction estimated)

Key

Temporary Access (Unbounded Material)

Land Acquisition Boundary

Land Acquisition - Servitude Boundary

P03	Amendments to Design Layout and Land Boundary				
	CW	CW	CW	AW	AW
	14/10/24	14/10/24	15/10/24	15/10/24	15/10/24
P02	Amendments to Design Layout				
	CW	CW	CW	AW	AW
	22/08/24	22/08/24	30/08/24	30/08/24	30/08/24
P01	Initial Revision				
	SK	CW	CW	AW	AW
	27/03/24	27/03/24	27/03/24	27/03/24	27/03/24
Revision	Revision details				
	Created	Checked	Reviewed	Approved	Authorised
	dd/mm/yy	dd/mm/yy	dd/mm/yy	dd/mm/yy	dd/mm/yy

Designer
Precision House
McNeil Drive
Motherwell, ML1 4UR

Client
George House
36 North Hannover St
Glasgow, G1 2AD

Project Name
A90/A937 Laurencekirk Junction Improvement Scheme

Drawing Title
Figure 5: Oatyhill Temporary Access to Denlethen Access - Sketch Plan

Project Ref. No.	Stage	Scale : 1:1250 @A3
25000276	2	Dimensions : m

Drawing Number

Project	Originator	Volume	Location	Type	Role	Number
A90LK	AMY	GEN	SJ	DR	C	0010

Suitability	Suitability Description	Revision
S2	For Information	P03

Appendix B: Noise and Vibration: Oatyhill Farmhouse Noise Assessment Review

Technical Note

Document Control Sheet

Project Name:	A90/A937 Laurencekirk Junction Improvement Scheme
Project Number:	CON2500276
Report Title:	Oatyhill Farmhouse Noise Assessment Review
Report Number:	A90LK-AMY-ENV-SWI-TN-EN-0001 Rev2

Oatyhill Farmhouse Noise Assessment Review

1.1. Introduction

The proposal to grade-separate the A90/A937 south junction of the A90 at Laurencekirk (hereinafter referred to as the scheme) has been subject to the Environmental Impact Assessment (EIA) process.

The Stage 3 Environmental Impact Assessment Report (EIAR) published in 2019 considered the impacts on surrounding receptors without the scheme (referred to as the Do-Minimum) as well as in future years when the scheme is fully opened to traffic (referred to as the Do-Something). These scenarios were generated based on traffic data taken from the traffic model which was prepared by Amey's Transport Planning team and independently audited by Aecom on behalf of Transport Scotland (TS).

The Stage 3 EIAR noise assessment predicted that Oatyhill Farmhouse ('the receptor') would not experience significant effects in either the short-term (opening year) and long-term (future year, 15 years from opening).

This Technical Note has been prepared to review the Stage 3 EIAR noise assessment, with specific focus on the receptor. The aim of this Technical Note is:

1. To refine the noise assessment at the receptor to include the effect of the existing adjacent 50 miles per hour (mph) zone in the 'do minimum' scenario,
2. to determine the potential impact on the receptor of removal of the existing adjacent 50mph zone, as proposed following construction of the scheme in the 'do something' scenarios.

1.2. Site Location

Laurencekirk is a small town located adjacent to the A90 dual carriageway approximately 40km south of Aberdeen. At present, there are three junctions that provide access to Laurencekirk from the A90. The two junctions associated with the scheme are:

- The A90/B9120 centre junction connecting Laurencekirk to the A92 near St Cyrus with residential properties located just off the dual carriageway on the Laurencekirk side of the junction with the A90
- The A90/A937 south junction connecting Laurencekirk with Montrose, which leads to Laurencekirk High Street and the centre of Laurencekirk including amenities, the primary school, care home, churches, and community halls etc

The principal urban area of Laurencekirk is situated to the west of the A90, whereas the setting to the east of the trunk road is predominantly rural, elevated relative to the road, with scattered farms and housing (Figure 1).

The A90 was included in the second round of strategic noise mapping carried out by the Scottish Government in 2017. The Transportation Noise Action Plan produced by Transport Scotland identified no Candidate Noise Management Area (CNMA) in Laurencekirk.

Safety improvements were undertaken in 2005 on the A90 on the approaches to the south junction with the A937, which included the introduction of a 50mph speed limit, the extent of which is shown in Figure 1.

No statutory designated sites (Area of Outstanding Natural Beauty, National Park, Special Areas of Conservation, Special Protection Areas, or Sites of Special Scientific Interest) are located within the study area.

The area of specific focus within this Technical Note is to the south of Laurencekirk outside Oatyhill Farmhouse as this is the closest receptor to the 50mph zone, being at 130m along the A90 to the south west. The location is shown in Figure 2.

Figure 1: Location of 50mph zones and Laurencekirk environs

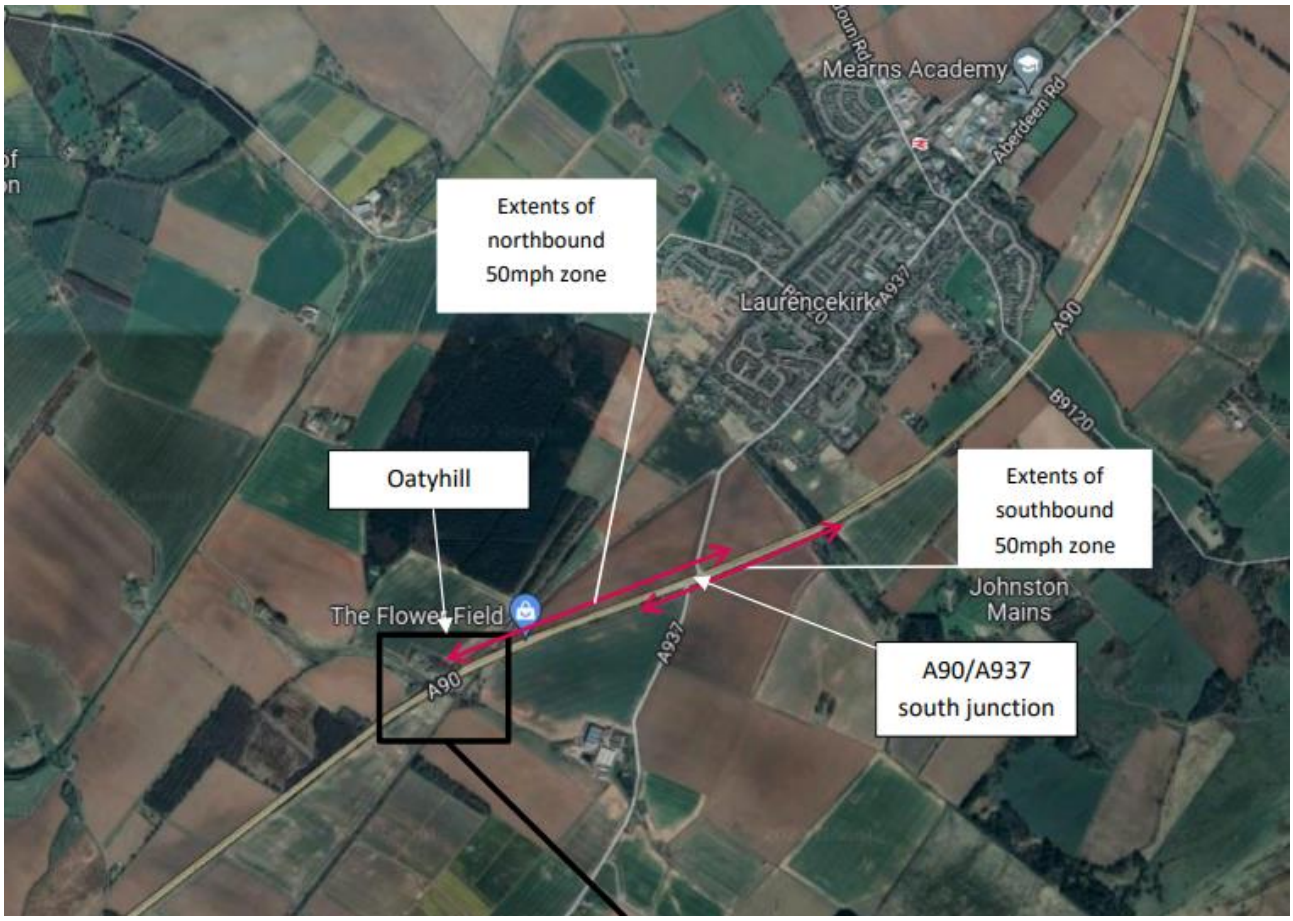
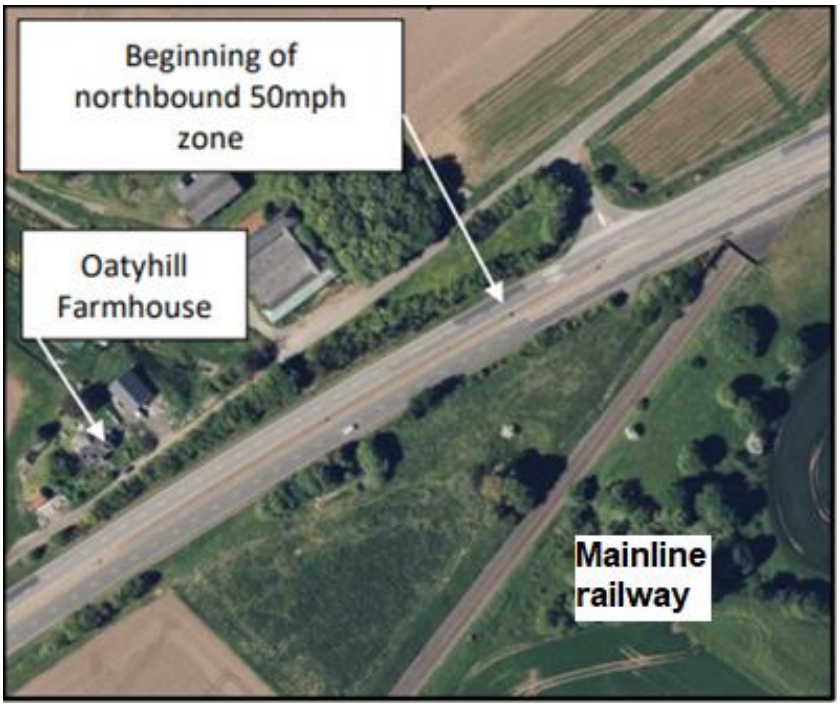


Figure 2: Location of Oatyhill Farmhouse and 50mph zone



1.3. Legislation & Planning

Design Manual for Roads and Bridges (DMRB)

DMRB LA 111 Noise and Vibration (Ref 1) sets out guidance for undertaking road traffic noise assessment. DMRB LA 111 states that noise sensitive receptors generally include dwellings, hospitals, community facilities, designated sites, and public rights of way.

The document suggests criteria for the assessment of the change in noise and vibration levels at receptors in both short-term (opening year) and long-term (future year, 15 years from opening) scenarios. At the most detailed stage, comparison is made of the change in noise level in the following scenarios:

- Do-minimum (opening year) against Do-minimum (future year) – this assesses the change in noise level expected without the scheme
- Do-minimum (opening year) against Do-something (opening year) – Assessing the impact from a short-term change in noise level. A 1dB change is considered the minimum perceptible change
- Do-minimum (opening year) against Do-something (future year) – Assessing the impact from a long-term change in noise level. A 3dB change is considered the minimum perceptible change

Assessment is made of the significance of effect, based on the magnitude of noise change.

Calculation of Road Traffic Noise (CRTN) 1988

CRTN (Ref 2) sets out an established methodology to calculate the road traffic noise at any given distance from the carriageway and is generally used as the basis of noise impact assessments. It considers numerous variables such as:

- Noise levels which are determined using the noise descriptor $L_{A10,18h}$, which is the arithmetic average of the noise levels that are exceeded for 10% of the time each hour between 06:00 and 24:00 hours
- Traffic data such as the Annual Average Weekday Traffic (AAWT) flow for the 18-hour period from 06:00 to 24:00 hours, average traffic speed, and percentage heavy goods vehicles
- Road gradient
- Type of existing and proposed road surface
- Angle of view to the carriageway
- Locations of existing screening or barriers.

Additional Guidance

Table 1 provides an outline of the legislative and policy context of the scheme in terms of noise and vibration.

Table 1: Noise and Vibration Policy and Legislation

Legislative	Description
Scottish Planning Policy (SPP) (Ref 3)	The SPP sets out priorities from the Scottish Government for the operation of the planning system and the development of land to ensure the key principles of sustainability are being met. This policy allows all environmental aspects to be considered along with health, social and economic factors.
The Environmental Noise (Scotland) Regulations 2006 (Ref 4)	The Environmental Noise (Scotland) Regulations 2006 implement the European Union (EU) Assessment and Management of Environmental Noise Directive (END) 2002/49/EC. This Directive requires member states to generate strategic noise maps and noise action plans intended to enable the derivation of a common assessment method by which exposure to environmental noise may be determined and, subsequently, reduced.

Legislative	Description
	The Transportation Noise Action Plan describes the key objectives under the END and how the Scottish Government will deliver the obligations. These obligations include commitments to combat unwanted or harmful noise created by human activities such as road transport to the improve health conditions and to improve quality of life. The latest Transportation Noise Action Plan identifies potential areas where transportation annoyance is an issue. In July 2014, the second round of noise maps and action plans was published by the Scottish Government and identified Candidate Noise Management Areas (CNMAs) or Noise Managements Areas, where possible mitigation measures may help manage the noise from the road or rail.
The Noise Insulation (Scotland) Regulations 1975 (Ref 5)	The Noise Insulation (Scotland) Regulations 1975 (NISR) provide local authorities with a duty to provide a grant towards the installation of noise insulation measures or with powers to undertake such works, as appropriate; these apply to dwellings affected by noise from new or altered roads. To establish receptor eligibility the methodology provided in "The Memorandum on the NISR 1975: Regulations 3 and 6" should be followed. Regulation 5 of the NISR allows a roads authority to offer a grant towards insulation works, or empowers it to provide such works, where noise from the construction of a new road affects the enjoyment of an eligible building.

1.4. Assessment Methodology

Calculations following the guidance in CRTN were used for this review to predict noise levels at Oatyhill Farmhouse, to determine whether there is a significant variation from the Stage 3 EIAR of 2019.

Traffic data used in the Stage 3 EIAR was sourced from the Amey Laurencekirk S-Paramics microsimulation model, which includes a 10km section of the A90 from North Water Bridge, via the Laurencekirk Bypass, to the junction with the B967 at Fordoun. The model was built using data from classified junction turning counts, automatic traffic counters, Bluetooth origin-destination surveys, queue length surveys, journey time surveys, and number-plate matching surveys. The S-Paramics model was able to provide hourly weekday traffic data including traffic volumes, average speeds, and percentages of each vehicle type, from which the 18-hour Annual Average Weekday Traffic (AAWT, 18h) flows for 2014, 2023 and 2033, traffic speed and percentage heavy goods vehicles (HGVs) were derived.

The traffic speeds used in the EIAR are detailed in Table 2. These are the averages for the 10km Laurencekirk section of the A90, which currently comprises national speed limit (70mph) and the 50mph zones (Do-minimum scenario); and which will all be national speed limit once the scheme has been built (Do-something scenario).

Table 2: Speeds used in EIAR (A90 Laurencekirk)

Road direction	Speed (mph)		
	Do-minimum – 2014	Do-something short-term - 2023	Do-something long-term – 2033
Northbound	65.4	65.5	65.1
Southbound	64.9	63.0	62.5

The noise model review undertaken for this Technical Note has used traffic speed data from a shorter length of the A90 adjacent to Oatyhill Farmhouse in order to make an appraisal of the existing and predicted noise levels specific to that receptor, and specifically to allow the 50mph zone and its removal to be considered in this assessment.

To ensure that the effect of the changing speed along this section is fully understood, the noise levels were predicted for different speed options as follows and as detailed in

Table 3:

- **Do-minimum Option** assumes that the existing speed along the 50mph speed limited section of the A90 is approximately 50mph.
- **Do-something Option 1** assumes that the average speed is approximately 60mph in both directions, which is the local average speed predicted in the traffic model with the 50mph speed limit zone removed.
- **Do-something Option 2** assumes a worst-case scenario average speed of 65mph with the 50mph speed limit zone removed.

Table 3: Speeds used in model review (A90 directly adjacent to Oatyhill Farm)

Road direction	Speed (mph)				
	Do-minimum (DM)	Do-something (DS) Option 1 - 2023	Do-something (DS) Option 1 - 2033	Do-something (DS) Option 2 - 2023 (worst-case)	Do-something (DS) Option 2 – 2033 (worst-case)
Northbound	52.1	60.5	60.2	65.0	65.0
Southbound	52.3	61.2	62.1	65.0	65.0

1.5. Results & Conclusion

The predicted noise levels at Oatyhill Farmhouse are detailed in Table 4 to Table 7.

Option 1

Table 4: Short-term Do-something comparison at Oatyhill Farmhouse

Representative Receptors and Façade	DS 2023 (dB $L_{A10,18hr}$)	DM 2023 (dB $L_{A10,18hr}$)	DS-DM (dB)	Magnitude of Impact	Magnitude of Impact predicted in Stage 3 EIAR assessment	Significant change from Stage 3 EIAR conclusion
Oatyhill Farmhouse (SE)	75.4	73.1	+2.3	Minor Adverse	Minor Adverse	No

Table 5: Long-term Do-something comparison at Oatyhill Farmhouse

Representative Receptors and Façade	DS 2033 (dB $L_{A10,18hr}$)	DM 2023 (dB $L_{A10,18hr}$)	DS-DM (dB)	Magnitude of Impact	Magnitude of Impact predicted in Stage 3 EIAR assessment	Significant change from Stage 3 EIAR conclusion
Oatyhill Farmhouse (SE)	75.8	73.1	+2.7	Negligible Adverse	Negligible Adverse	No

Option 2

Table 6: Short-term Do-something comparison at Oatyhill Farmhouse

Representative Receptors and Façade	DS 2023 (dB $L_{A10,18hr}$)	DM 2023 (dB $L_{A10,18hr}$)	DS-DM (dB)	Magnitude of Impact	Magnitude of Impact predicted in Stage 3 EIAR assessment	Significant change from Stage 3 EIAR conclusion
Oatyhill Farmhouse (SE)	75.9	73.1	+2.8	Minor Adverse	Minor Adverse	No

Table 7: Long-term Do-something comparison at Oatyhill Farmhouse

Representative Receptors and Façade	DS 2033 (dB $L_{A10,18hr}$)	DM 2023 (dB $L_{A10,18hr}$)	DS-DM (dB)	Magnitude of Impact	Magnitude of Impact predicted in Stage 3 EIAR assessment	Significant change from Stage 3 EIAR conclusion
Oatyhill Farmhouse (SE)	76.3	73.1	+3.2	Minor Adverse	Negligible Adverse	Change but not significant (difference of +1.6dB)

1.6. Conclusion

The assessment for Option 1 concluded that there was a Minor Adverse impact in the short term and Negligible Adverse impact in the long term.

The assessment for Option 2 (potential worst case) concluded that there was a Minor Adverse impact in the short and long term.

These assessment outcomes are in accordance with the findings of the 2019 EIAR – the only change noted is in the long-term magnitude of impact for the potential worst case scenario from Negligible Adverse to Minor Adverse, despite the more granular approach and the introduction of the lower average speed in the Do-minimum scenario.

1.7. References

Ref 1 Highways England (2020) Design Manual for Roads and Bridges LA 111 Noise and vibration

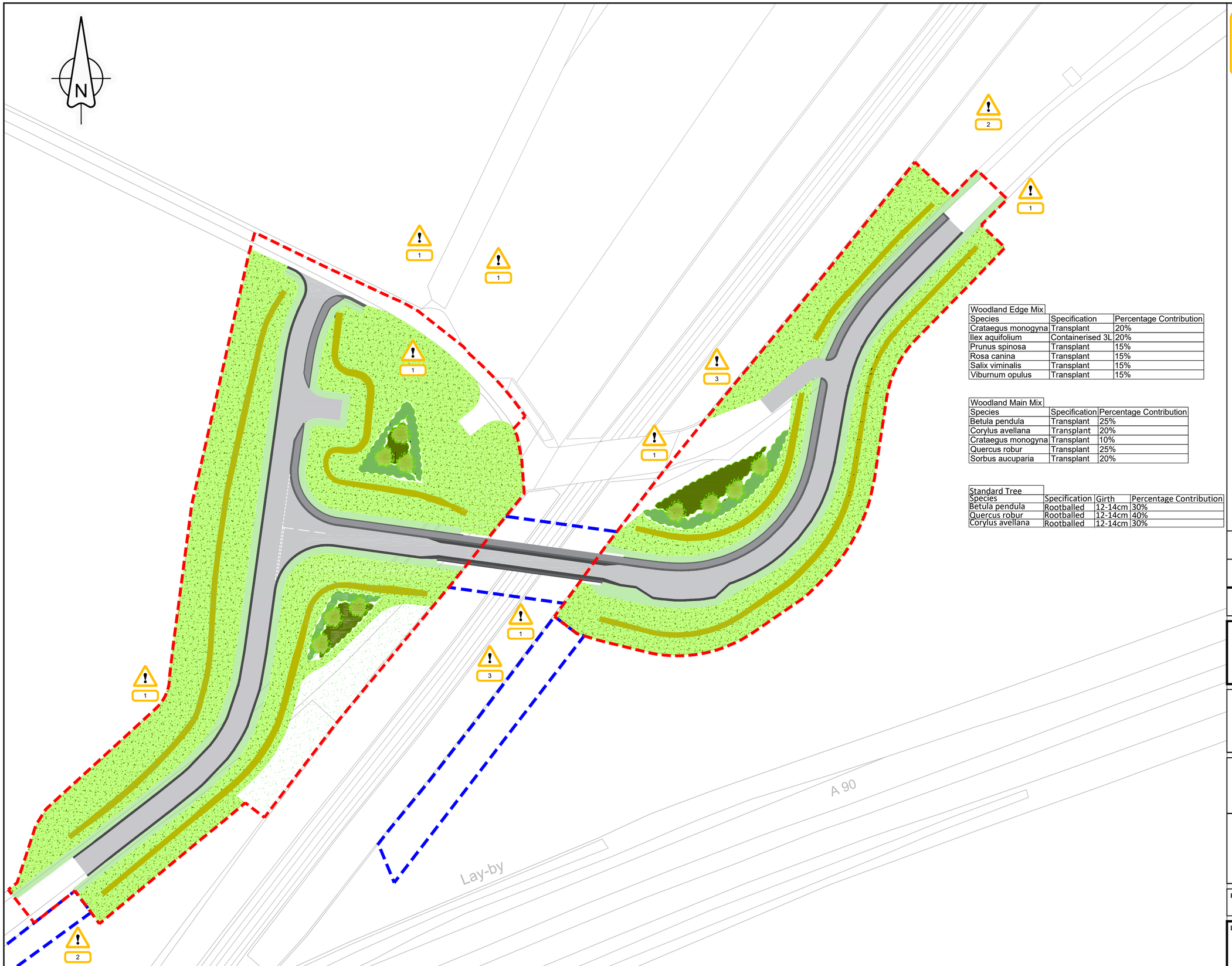
Ref 2 Department for Transport (1988) Calculation of Roads Traffic Noise

Ref 3 Scottish Government (2020) Scottish Planning Policy

Ref 4 Legislation (2006) The Environmental Noise (Scotland) Regulations 2006

Ref 5 Legislation (1975) The Noise Insulation (Scotland) Regulations 1975

Appendix C: Landscape and Visual Effects: Oatyhill Access Landscape Mitigation



Woodland Edge Mix		
Species	Specification	Percentage Contribution
Crataegus monogyna	Transplant	20%
Ilex aquifolium	Containerised 3L	20%
Prunus spinosa	Transplant	15%
Rosa canina	Transplant	15%
Salix viminalis	Transplant	15%
Viburnum opulus	Transplant	15%

Woodland Main Mix		
Species	Specification	Percentage Contribution
Betula pendula	Transplant	25%
Corylus avellana	Transplant	20%
Crataegus monogyna	Transplant	10%
Quercus robur	Transplant	25%
Sorbus aucuparia	Transplant	20%

Standard Tree			
Species	Specification	Girth	Percentage Contribution
Betula pendula	Rootballed	12-14cm	30%
Quercus robur	Rootballed	12-14cm	40%
Corylus avellana	Rootballed	12-14cm	30%

RESIDUAL DESIGN HAZARDS

(The following information has been collected from Preconstruction Information and the Amey CDM Hazard Management Process.)

1. Existing underground and overhead services may be present.
2. Working close to live traffic.
3. Environmental Considerations (Nesting Birds).

NOTES

1. Do not scale from this drawing
2. All dimensions in meters unless stated otherwise.
3. The drawing to be read in conjunction with all engineering drawings relative to the proposed scheme.
4. Any Ash tree's located within site extents to be replaced with a native species due to the spread of Ash dieback.
5. All works taking place in the general areas of utilities should follow adequate clearance as set out in DMRB LD117. Contractor to ascertain exact location.
6. Contractors responsibility to ensure ultimate site of proposed trees is in accordance with LD117 & offsets required.
7. Existing trees required to be removed shall be chipped on site and used as mulch for proposed planting areas.
8. All mixes (planting & seeding) to be of local provenience.

KEY:

- Land Acquisition Boundary
- Land Acquisition - Servitude Boundary
- Existing Grass to be retained and enhanced
- Proposed Wet Meadow Mix (SCM2) by Scotia Seeds or similar approved
- Proposed Meadow Mix (MG5) by Scotia Seeds or similar approved
- Proposed Flowering Lawn Mix (SCM6) by Scotia Seeds or similar approved
- Proposed Woodland Edge Mix
- Proposed Woodland Mix
- Proposed Standard Trees

REV					
	Revision details				
	Created	Checked	Reviewed	Approved	Authorised
	dd/mm/yy	dd/mm/yy	dd/mm/yy	dd/mm/yy	dd/mm/yy
P01	First Revision				
	LG	LG	AAM	AAM	AW
	11/01/24	11/01/24	12/01/24	12/01/24	29/01/24
P02	Second Revision				
	TG	TG	LG	AAM	AW
	25/10/24	30/10/24	30/10/24	01/11/24	04/11/24

Designer
Precision House
McNeil Drive
Motherwell
ML1 4UR

Client
2nd Floor
George House
36 North Hanover St,
Glasgow G1 2AD

Project Name
A90/A937 Laurencekirk Junction Improvement Scheme

Drawing Title
Oatyhill Access
Landscape Mitigation

Project Ref. No.	Stage	Scale : 1:500m @ A1
25000276	3	Dimensions : m

Drawing Number

Project	Originator	Volume			
A90LK	- AMY	- HSR	-		
SWI		- DR	- LS	-	0001
Location		Type	Role		Number

Suitability	Suitability Description	Revision
S2	For Information	P02

0 25m
SCALE 1:500

Appendix D: Biodiversity: Protected Species Survey Report (PSSR)

Amey

Protected Species Survey Report

A90/A937 Laurencekirk Junction Improvement Scheme and Access to Oatyhill
CO25000276 / 1.0

30/01/2024

Contents

Tables and Figures

Tables

1. Introduction

1.1. Background

1.1.1 The A90 trunk road is the main strategic link between Dundee and Aberdeen. The settlement of Laurencekirk is located approximately 40km south of Aberdeen.

1.1.2 The proposed A90/A937 Laurencekirk Junction Improvement Scheme will see the construction of a grade-separated junction approximately 600m southwest of Laurencekirk. This will replace the existing at-grade crossing where the A937 meets the A90. The proposed scheme will consist of a full diamond layout with dumb-bell roundabouts and four slip roads forming the new A90/A937 junction to the south of Laurencekirk.

1.1.3 The proposed northbound diverge and southbound merge slip roads to the grade-separated junction commence approximately 200m northeast of the existing Oatyhill junction with the A90, which provides local access to four dwellings. It is therefore proposed as part of the scheme to close the Oatyhill junction and the associated central reserve crossing point on safety grounds. This is turn will require the provision of an alternative access route to Oatyhill via a new road bridge over the East Coast Main Line, to be constructed parallel to an existing overbridge which is closed to vehicles due to structural defects. These proposals form the 'Access to Oatyhill' part of the scheme, which has been developed since the Design Manual for Roads and Bridges (DMRB) Stage 3 Environmental Impact Assessment Report (EIAR) for the junction improvements was published in 2019.

1.1.4 Figure 1.1 in the A90/A937 Laurencekirk Junction Improvement Scheme – Access to Oatyhill EIAR Addendum, which this report forms an appendix to, shows the location and layout of the A90/A937 Laurencekirk Junction Improvement Scheme and Access to Oatyhill.

1.1.5 Amey Consulting was commissioned by Transport Scotland to undertake protected species surveys in 2022 to update the ecological baseline of the scheme and maintain the validity of surveys undertaken for the Ecological Impact Assessment (EcIA) of the scheme at Stage 3. This report presents the findings of those surveys and updates the Protected Species Survey Report (PSSR) included within the 2019 EIAR (Ref 1).

1.2. Study Area and Location

1.2.1 The study area is located in the north east of Scotland, within the Aberdeenshire Council area. The 'scheme' in this report is defined as the design of the A90/A937 junction improvements to the south of Laurencekirk and the associated access proposals for the dwellings at Oatyhill. The surrounding area consists of predominantly lowland arable farmland, interspersed with areas of grassland, woodland, and watercourses.

1.2.2 Individual study areas for the protected species surveys are defined below and are based on the Zone of Influence (ZoI) over which individual ecological receptors may be impacted by construction and operation of the scheme (Ref 2). Unless otherwise specified, study areas are the same as those used for the previous species surveys undertaken in 2017 and 2018.

1.2.3 Aquatic invertebrate surveys undertaken for the Stage 3 EcIA were restricted to Gaugers Burn and were not updated as part of this work as there had been no change to the habitat suitability of this watercourse.

Breeding and wintering birds

1.2.4 A 500m buffer was applied to the breeding and wintering bird surveys; transects were walked by the surveyors to map territories (where applicable) and identify species.

Red squirrel

1.2.5 Red squirrel *Sciurus vulgaris* surveys were undertaken along the woodland adjacent to Gaugers Burn for up to 500m either side of the existing A90. Incidental sightings of red squirrel were also made within woodlands in the wider study area during other field surveys.

Badger

1.2.6 A badger *Meles meles* survey was carried out within a 100m buffer of the proposed scheme. Incidental evidence of badger activity was also recorded in the wider study area during other field surveys.

Otter and water vole

1.2.7 An otter *Lutra lutra* and water vole *Arvicola amphibius* survey was undertaken along Kirk Burn, Gaugers Burn and an unnamed watercourse near Mains of Newton, which included up to 500m either side of the existing A90. These watercourses are located within approximately 200m of the proposed scheme. Additional unnamed watercourses were surveyed within 500m of the existing A90 to the north of the study area, but the results are not reported here as they fall outwith the ZoI of the scheme.

Bats

1.2.8 Bat activity surveys were carried out within a 500m buffer of the scheme, with walked transects strategically planned according to features of potential importance (i.e., mature tree lines, woodland edges). Transects were also planned to ensure the safest route for the surveyors and allow for safe crossing over watercourses.

1.3. Objectives

1.3.1 This report documents additional protected species undertaken in 2022 to update the findings of the previous PSSR included within the 2019 EIAR (Ref 1). It also includes an updated desk study for biological records relevant to the scheme. The objective of the combined desk study and field survey results is to provide up-to-date baseline conditions for assessment of potential impacts of the scheme on protected species in accordance with statutory guidance (Ref 3).

1.3.2 The report presents the survey methods and results but does not attempt to assess potential ecological impacts and significance. These are considered within Chapter 9: Biodiversity of the A90/A937 Laurencekirk Junction Improvement Scheme – Access to Oatyhill EIAR Addendum, which also takes into account the Access to Oatyhill design changes to the scheme and updated DMRB guidance.

1.3.3 All Figures referred to in this report can be found in the EIAR Addendum.

1.4. Limitations

1.4.1 Desk studies do not provide an exhaustive list of all ecological information for a study area. A lack of records may reflect low levels of biological recording effort rather than an absence of notable species in an area.

1.4.2 Inevitably with any ecological survey it cannot be guaranteed to detect all species and individuals, and surveys cannot be fully representative of all conditions (e.g., severely reduced visibility). In this case it was concluded that the baseline surveys provide a robust data set. Access to the study area was generally unrestricted throughout the surveys and good coverage was achieved, with the exceptions noted below.

Breeding and wintering birds

1.4.3 It is recognised that bird detectability (accurate counts and identification of bird species) can be a limitation in all bird surveys. Detectability is limited by a range of factors including distance between surveyors and birds, weather conditions, equipment used and surveyor competence. Bird detectability was taken account of during both the breeding and wintering bird surveys.

1.4.4 Potential limitations as regards detectability were minimised by a range of techniques; these included use of the same equipment during all surveys, avoiding weather conditions with poor visibility, and making multiple observations from fixed locations (vantage counts and point counts) throughout each survey period to limit disturbance and to reduce observation distances.

Red squirrel

1.4.5 There were no significant limitations associated with the red squirrel survey.

Badger

1.4.6 The Access to Oatyhill design had not been finalised at the time of the surveys and consequently the badger survey area did not include the southwestern corner of Denlethen Wood, which offers suitable badger habitat within 100m of that part of the scheme. Incidental evidence of badger was not observed within this woodland during other species surveys in the study area. However, badger activity in this area is likely to have been under-recorded and a precautionary approach has been adopted due to their presence elsewhere on site.

Otter and water vole

1.4.7 The Access to Oatyhill design had not been finalised at the time of the surveys and consequently the otter and water vole survey area did not include a minor roadside ditch located within 200m of this part of the scheme. However, this ditch connects to an unnamed burn near Mains of Newton (watercourse A) that was surveyed and was found to be generally unsuitable for these species due to agricultural runoff pollution. The drain itself was also noted to be very shallow and is unlikely to support either species. As such, this is not a significant limitation to the otter and water vole survey findings.

Bats

1.4.8 Static bat detector surveys undertaken as part of the previous survey effort in 2018 were not replicated due to a shortage of equipment at the time of the updated surveys. Consequently, to provide a robust baseline update it was decided to do additional bat activity transect surveys instead. Some alterations were made to the walked transect routes (particularly transect T3) after the initial survey visit due to land access limitations and to reduce the length of the transect to focus on key areas.

1.4.9 Weather constraints also meant that the transect T3 dawn survey in July had to be cancelled due to sudden heavy rain and high winds after the survey commenced. This gap in survey data is not a significant limitation given that full coverage of the survey area was achieved across the other visits and a low level of bat activity was recorded generally.

1.4.10 Rail access was not granted for ecologists to undertake dusk emergence and dawn re-entry surveys on the existing Oatyhill road bridge over the East Coast Main Line. Overhanging vegetation meant that these surveys could not be undertaken effectively outside of the rail boundary due to restricted sight lines. This structure will not be directly impacted by the Access to Oatyhill scheme design and it was determined that transects routed across the bridge would provide data on bat activity in this part of the study area to inform the updated baseline assessment. However, the presence of bat roosts in this structure cannot be ruled out and a precautionary approach to the assessment has been adopted.

2. Methodology

2.1. Desk Study

2.1.1 A desk study was undertaken in order to identify any existing ecological information relating to the proposed scheme and its surroundings. This was undertaken as an update to the previous desk study reported in the Preliminary Ecological Appraisal (PEA) for the junction scheme (Ref 4) in order to inform the updated ecological assessment and species surveys, rather than a full baseline desk study.

2.1.2 Multi-Agency Geographic Information for the Countryside (MAGIC) Maps (Ref 5) and NatureScot SiteLink (Ref 6) were used to identify statutory designated sites for nature conservation within 2km of the proposed scheme, extended to 10km for sites designated primarily for bats or birds.

2.1.3 A biological data request was made to North East Scotland Records Centre (NESBReC) in December 2023 to obtain records of locally designated sites for nature conservation and protected and notable species within a 2km radius of the proposed scheme, centred at National Grid Reference (NGR) NO 70800 70200. Historic species records pre-dating the year 2000 have been excluded from the results.

2.2. Breeding Birds

2.2.1 Field survey methods for breeding birds followed best practice methodologies from the Bird Survey Guidelines (Ref 7), which are broadly based on the British Trust for Ornithology's (BTO) Common Birds Census (Ref 8).

2.2.2 Field surveys for evidence of breeding birds were conducted in all suitable habitats within a 500m buffer of the proposed scheme. This is referred to as the 'survey area' within this report.

2.2.3 Abundance and peak counts were recorded for all bird species observed. Notable species were mapped, and the number of territories estimated. Species were considered notable if they met at least one of the following criteria: a species listed on Schedule 1 of the Wildlife and Countryside Act 1981, a Birds of Conservation Concern (BoCC) Red or Amber listed species (Ref 9) or a priority species under Section 2(4) of the Nature Conservation (Scotland) Act 2004. Green listed species were recorded but not mapped.

2.2.4 The survey area was divided into two walked transects, one covering the agricultural habitats to the south of the A90 and the other covering agricultural land and woodland to the north of the A90. The transect routes were based closely on those used for previous breeding bird surveys in 2017. Four repeat visits to each transect were undertaken, with visits evenly spread across the peak breeding bird season of April to July, as shown in Table 1. Surveys were undertaken during suitable weather conditions by Amey Ecologists Rachel Kennedy (BSc, ACIEEM) and Andrew Halcro-Johnston (MSc, MCIEEM).

Table 1: Weather conditions during breeding bird surveys

DATE	CLOUD COVER (OKTAS)	WIND (BEAUFORT)	PRECIPITATION	TEMPERATURE (°C)
22/04/2022	0/8	2	None	6
20/05/2022	4/8	1	None	12
10/06/2022	2/8	5	None	11
06/07/2022	8/8	4	None	17

2.2.5 Standard BTO species codes and symbols were used to record bird activity. Clear evidence of breeding was defined by particular types of activity or signs, such as males singing, repeated alarm calls or signs of nesting activity. The types of breeding evidence fall into three categories which are confirmed, probable and possible, and are based on the breeding behaviour codes used in the BTO's Bird Atlas surveys (Ref 10).

2.2.6 The first three surveys (22/04, 20/05 and 10/06) were timed to take place during the morning, when breeding birds are most active. These surveys began just after dawn. The final survey (06/07) was undertaken prior to dusk so that birds such as barn owl (*Tyto alba*) that are more active at this time of day would be recorded, should they be present.

2.3. Wintering Birds

2.3.1 Field survey methods for wintering birds followed best practice methodologies from the Bird Survey Guidelines for non-breeding walkover surveys (Ref 7). The survey area lacked large bodies of water that would otherwise require a targeted wetland bird survey.

2.3.2 Field surveys for evidence of wintering birds were conducted in all suitable habitats within a 500m buffer of the proposed scheme. This is referred to as the 'survey area' within this report.

2.3.3 Abundance and peak counts were recorded for all bird species recorded. Notable species were mapped. Species were considered notable if they met at least one of the following criteria: a species listed on Schedule 1 of the Wildlife and Countryside Act 1981, a Birds of Conservation Concern (BoCC) Red or Amber listed species (Ref 9) or a priority species under Section 2(4) of the Nature Conservation (Scotland) Act 2004. Green listed species were recorded but not mapped.

2.3.4 The survey area was divided into two walked transects, one covering the agricultural habitats to the south of the A90 and the other covering agricultural land and woodland to the north of the A90. The transect routes were based closely on those used for previous wintering bird surveys in 2018 but were extended to include additional areas of arable habitat within the survey area.

2.3.5 Two repeat visits to each transect were undertaken during the late winter period of February and early March, as shown in Table 2. This was considered an appropriate level of effort to update the previous surveys, given the relatively simple habitats on site and lack of waterbodies that could support a more diverse assemblage of notable species. Visits were split over two days so that each transect could be surveyed during the earlier part of the day when birds were more active.

Table 2: Weather conditions during wintering bird surveys

DATE	CLOUD COVER (OKTAS)	WIND (BEAUFORT)	PRECIPITATION	TEMPERATURE (°C)
08/02/2022	3/8	4	None	4
09/02/2022	1/8	4	None	1
08/03/2022	7/8	5	None	4
09/03/2022	3/8	6	None	6

2.3.6 Each transect was walked slowly during the survey visits. Surveyors stopped at periodic vantage points along the transect route that afforded good views over the survey area. Standard BTO species codes and symbols were used to record bird activity, including birds in flight.

2.3.7 During the March survey visit a ground-level internal inspection was made of old stone farm outbuildings at Oatyhill (NGR NO 69884 69875) for their suitability to support roosting and nesting barn owl, following reported sightings of this species in the local area by the farm manager (see Photograph 1 in Appendix A).

2.4. Red Squirrel

2.4.1 Previous hair tube surveys and visual surveys for dreys confirmed the presence of red squirrel in the area in 2017-18.

2.4.2 Hair tube surveys were not repeated as there had been no substantial change to red squirrel habitat since the initial surveys. In March 2022, Amey Ecologists undertook a visual survey of woodland along Gaugers Burn where red squirrels had previously been recorded, as well as remaining alert during other species surveys for visual signs of red squirrels and/or dreys (Ref 11).

2.5. Badger

2.5.1 At Stage 2, the Phase 1 habitat survey identified areas of suitable habitat to support badger. The presence of badgers on site was later confirmed by targeted surveys in 2018.

2.5.2 An updated field survey was carried out in accordance with best practice guidelines (Ref 12) on 22nd March 2022. The survey area consisted of a 100m buffer around the proposed junction, as used for the previous surveys.

2.5.3 The survey aimed to:

- Locate any badger setts;
- Assess the status of any setts found; and
- Identify and record any signs of badger activity including:
  - latrines, snuffle pits, push throughs, hair, footprints, fresh spoil and any signs of foraging activity.

2.5.4 The following features were identified and recorded for any setts discovered:

- The number of entrances to the sett;
- Signs of recent digging or fresh spoil at each entrance to the sett;
- Presence of vegetation at each entrance to the sett;
- Presence of footprints, hair, droppings or bedding in or close to each entrance to the sett; and
- Presence of well-worn paths leading to and from the sett.

2.5.5 Setts as a whole (not by entrance) were then classified according to the likely level of activity, as described in Table 3 below.

Table 3: Sett activity classification

SETT ACTIVITY	DESCRIPTION
Active	Large spoil heap outside, freshly dug with well-worn paths present between entrances and leading into surrounding habitat, entrances generally clear of vegetation and look well-used.
Inactive	No signs of recent badger activity but visible paths are present, usually only one or two entry holes with spoil heap outside, where spoil has not been added recently, sett does not appear to be in constant use.
Disused	Sett has been unused for at least one season. Large amount of leaf litter/debris collected at entrance and vegetation grown up around it. No obvious paths visible leading to and from entrance and spoil heap has weathered and become revegetated.

2.5.6 Setts were then assigned a type, as described in Table 4 below:

Table 4: Sett type classification

SETT ACTIVITY	DESCRIPTION
Main	Usually have a large number of holes with spoil and well-worn pathways from the sett and between entrances to the sett.
Annex	Usually located <150m away from a main sett and connected by well-worn pathways.
Subsidiary	Usually at least 50m from the main sett, may not be in constant use.
Outlier	Usually with one or two entrances and used sporadically.

2.6. Otter and Water Vole

2.6.1 The PEA for the scheme (Ref 4) identified suitable habitat for riparian mammals – otter and water vole – along the various watercourses and field drains within the study area. Targeted surveys in 2017-18 did not confirm the presence of either species, although otters have previously been observed by Amey ecologists on site.

2.6.2 The survey methodology followed best practice guidance for each species: The Water Vole Mitigation Handbook (Ref 13) and Ecology of the European Otter (Ref 14). The water vole survey was adapted from guidance – one survey visit at the start of the water vole active season was considered appropriate to update the findings of previous surveys, which had not recorded water vole, and given the lack of records of this species in the study area. The weather prior to and during the survey work was suitable for surveys.

2.6.3 Surveys were carried out within an unnamed watercourse at Mains of Newton (A), Gaugers Burn (B) and Kirk Burn (C), and recorded all identified signs of potential water vole presence including:

- Faeces;
- Latrines;
- Burrows;
- Runs;
- Feeding stations; and
- Footprints.

2.6.4 These watercourses were also surveyed for otter field signs, which include:

- Footprints;
- Spraints;

- Feeding remains;
- Slides;
- Couches; and
- Holts.

2.7. Bats

2.7.1 Bat activity surveys were carried out in accordance with Bat Conservation Trust (BCT) Good Practice Guidelines (Ref 15) and The Bat Workers' Manual (Ref 16).

2.7.2 Three walked transect routes were selected to cover the study area. These generally followed the routes used during the 2017 surveys, where access allowed, and were surveyed in the spring, summer and early autumn months. The transect routes were labelled T1, T2 and T3 respectively. The suffix -1 was then added for the transect undertaken in May, -2 for July and -3 for August. The transect routes were selected to include landscape features such as mature tree lines and woodland edges that were identified in the PEA (Ref 4).

2.7.3 Dusk surveys commenced approximately 30 minutes prior to sunset and continued at least 90 minutes after sunset and dawn surveys commenced approximately 90 minutes prior to sunrise and continued until 30 minutes past sunrise.

2.7.4 Visual observations of bats were aided with the use of full spectrum Bat Logger M2 detectors. Bat calls that could not be identified in the field were recorded for later analysis.

2.7.5 The routes taken were altered where possible, by alternating the starting point of the transects. This allowed for the different emergence time of bat species and provided a more comprehensive overview of activity.

2.7.6 Survey dates, times and weather conditions are shown in Table 5.

Table 5: Weather conditions experienced during bat activity surveys

DATE	TRANSECT NUMBER	SURVEY	SUNSET/SUNRISE	CLOUD COVER (OKTAS)	WIND (KNOTS)	RAIN (FORCE)	TEMPERATURE (°C)
23/05/2022	1.1	Dusk	21:37	2	2	0	9
24/05/2022	2.1	Dawn	04:01	2	3	0	8
24/05/2022	3.1	Dusk	21:38	1	2	0	10
27/07/2022	2.2	Dusk	22:04	4	11	2/3	12
28/07/2022	3.2	Dawn	03:47	6	28	5/6	15
28/07/2022	1.2	Dusk	22:04	2	8	0	14
29/08/2022	2.3	Dusk	20:54	1	4	0	12
30/08/2022	1.3	Dawn	05:51	1	2	0	11
30/08/2022	3.3	Dusk	20:49	2	4	0	12

2.7.7 The poor weather conditions on the 28/07 dawn survey resulted in this survey being cancelled. Deteriorating wind and rain conditions were deemed unsuitable to gain an accurate representation of bat activity.

2.7.8 The transects incorporated listening points, which were predetermined at strategic locations along each route prior to the survey. Surveyors stopped at these points to observe bat activity for a minimum of five minutes.

3. Results

3.1. Desk Study

Designated sites

3.1.1 The desk study identified one statutory ecologically designated site within 2km of the central NGR:

- West Bradieston and Craig of Garvock Site of Special Scientific Interest (SSSI) located on the Hill of Garvock, approximately 1.8km south-east of the central NGR. The site represents the largest-known area of semi-natural grassland and fen-meadow habitats in Aberdeenshire.

3.1.2 There are no European sites designated for bats or birds within 10km of the central NGR.

3.1.3 There are no non-statutory designated sites within 2km of the central NGR.

Red squirrel

3.1.4 A total of 180 records of red squirrel were made within 2km of the central NGR. The closest record was located approximately 220m north. The majority of records were associated with Denlethen Wood (to the north-west of the survey area) and the residential area of Laurencekirk.

Pine marten

3.1.5 Five records of pine marten *Martes martes* were made within 2km of the central NGR. All five records were associated with camera trapping in Denlethen Woods, centred approximately 850m north-west.

Badger

3.1.6 Five records of badger were made within 2km of the central NGR. The majority of records were from agricultural land south of the A90 carriageway or were road casualties. Badgers have also been recorded in Denlethen Wood.

Bats

3.1.7 Five bat records were made within 2km of the central NGR. Species recorded were common pipistrelle *Pipistrellus pipistrellus* (two records) and soprano pipistrelle *Pipistrellus pygmaeus* (three records).

3.1.8 These include three records of pipistrelle non-breeding summer roosts located within the Laurencekirk residential area to the north-east of the scheme.

Hedgehog

3.1.9 Three records of hedgehog *Erinaceus europaeus* were made within 2km of the central NGR. Two of these records consisted of road casualties along the A90 and A937 carriageways respectively, while the third record was observed along the boundary of Denlethen Wood.

Birds

3.1.10 A total of twenty notable bird species were recorded within 2km of the central NGR. These included twelve BoCC Red listed species, six Amber listed species and one Schedule 1 species (barn owl). Table 6 shows all NESBReC notable bird records within a 2km buffer of the central NGR.

Table 6: Notable bird species recorded within 2km of central NGR

BTO SPECIES CODE	COMMON NAME	SCIENTIFIC NAME	NUMBER OF RECORDS	CONSERVATION STATUS*
BO	Barn owl	*Tyto alba*	2	Green, Schedule 1, UKBAP, SBL
BH	Black-headed gull	*Chroicocephalus ridibundus*	1	Amber, SBL
BF	Bullfinch	*Pyrrhula pyrrhula*	1	Amber, UKBAP, SBL

CU	Curlew	*Numenius arquata*	2	Red, UKBAP, SBL
D.	Dunnock	*Prunella modularis*	3	Amber, UKBAP, SBL
P.	Grey partridge	*Perdix perdix*	2	Red, UKBAP, SBL
HG	Herring gull	*Larus argentatus*	8	Red, UKBAP, SBL
HS	House sparrow	*Passer domesticus*	7	Red, UKBAP, SBL
K.	Kestrel	*Falco tinnunculus*	2	Amber, SBL
L.	Lapwing	*Vanellus vanellus*	2	Red, UKBAP, SBL
LI	Linnet	*Carduelis cannabina*	3	Red, UKBAP, SBL
RB	Reed bunting	*Emberiza schoeniclus*	2	Amber, UKBAP
SK	Siskin	*Spinus spinus*	1	Green, SBL
S.	Skylark	*Alauda arvensis*	3	Red, UKBAP, SBL
SF	Spotted flycatcher	*Muscicapa striata*	2	Red, UKBAP, SBL
SG	Starling	*Sturnus vulgaris*	6	Red, UKBAP, SBL
ST	Song thrush	*Turdus philomelos*	4	Amber, UKBAP, SBL
SI	Swift	*Apus apus*	5	Red, SBL
TS	Tree sparrow	*Passer montanus*	2	Red, UKBAP, SBL
Y.	Yellowhammer	*Emberiza citrinella*	4	Red, UKBAP, SBL

*UKBAP = UK Biodiversity Action Plan, SBL = Scottish Biodiversity List

3.2. Breeding Birds

3.2.1 A total of 46 bird species were recorded within the survey area during the surveys, of which 27 are notable bird species. These included:

- One species designated under Schedule 1: REDACTED.
- Twelve BoCC Red listed species: lesser redpoll *Acanthis cabaret*, linnet *Carduelis cannabina*, skylark *Alauda arvensis*, yellowhammer *Emberiza citrinella*, starling *Sturnus vulgaris*, herring gull *Larus argentatus*, house sparrow *Passer domesticus*, grey partridge *Perdix perdix*, greenfinch *Chloris chloris*, tree sparrow *Passer montanus*, house martin *Delichon urbicum* and swift *Apus apus*.
- Thirteen BoCC Amber listed species: woodpigeon *Columba palumbus*, wren *Troglodytes troglodytes*, mallard *Anas platyrhynchos*, song thrush *Turdus philomelos*, dunnock *Prunella modularis*, kestrel *Falco tinnunculus*, rook *Corvus frugilegus*, black-headed gull *Chroicocephalus ridibundus*, moorhen *Gallinula chloropus*, oystercatcher *Haematopus ostralegus*, sparrowhawk *Accipiter nisus*, willow warbler *Phylloscopus trochilus* and whitethroat *Curruca communis*.
- Fifteen species on the Scottish Biodiversity List (SBL): black-headed gull, house sparrow, skylark, yellowhammer, herring gull, song thrush, starling, linnet, grey partridge, dunnock, red kite, swift, tree sparrow, lesser redpoll and siskin *Spinus spinus*.
- Eleven species listed on the UK Biodiversity Action Plan (UK BAP): house sparrow, skylark, yellowhammer, herring gull, song thrush, starling, linnet, grey partridge, dunnock, lesser redpoll and tree sparrow.
- A further 19 Green listed species were recorded during the surveys. These are detailed in Appendix B.

3.2.2 A summary of the notable bird species is given below in Table 7, which provides the peak counts of each species recorded across all transect visits as well as an estimate of the number of territories within the survey area. The locations of notable bird species recorded are shown in Figures 9.1a, 9.1b, 9.1c and 9.1d.

Table 7: Breeding birds survey results

BTO SPECIES CODE	COMMON NAME	SCIENTIFIC NAME	PEAK COUNT	NUMBER OF TERRITORIES	CONSERVATION STATUS
BH	Black-headed gull	*Chroicocephalus ridibundus*	1	0	Amber, SBL
D.	Dunnock	*Prunella modularis*	2	1	Amber, UKBAP, SBL
GR	Greenfinch	*Chloris chloris*	4	0	Red
P.	Grey partridge	*Perdix perdix*	1	1	Red, UKBAP, SBL
HG	Herring gull	*Larus argentatus*	71	0	Red, UKBAP, SBL
HM	House martin	*Delichon urbicum*	11	0	Red
HS	House sparrow	*Passer domesticus*	17	6	Red, UKBAP, SBL
K.	Kestrel	*Falco tinnunculus*	1	0	Amber
LR	Lesser redpoll	*Acanthis cabaret*	1	1	Red, UKBAP, SBL
LI	Linnet	*Carduelis cannabina*	5	0	Red, UKBAP, SBL
MA	Mallard	*Anas platyrhynchos*	13	1	Amber
MH	Moorhen	*Gallinula chloropus*	2	1	Amber
OC	Oystercatcher	*Haematopus ostralegus*	2	0	Amber
	REDACTED		1	0	Green, Schedule 1, SBL
RO	Rook	*Corvus frugilegus*	35	0 (large rookery present south of Transect 1, outside the survey area)	Amber
SK	Siskin	*Spinus spinus*	4	0	Green, SBL
S.	Skylark	*Alauda arvensis*	30	23	Red, UKBAP, SBL
SG	Starling	*Sturnus vulgaris*	6	0	Red, UKBAP, SBL
SH	Sparrowhawk	*Accipiter nisus*	1	0	Amber
ST	Song thrush	*Turdus philomelos*	3	2	Amber, UKBAP, SBL
SI	Swift	*Apus apus*	29	0	Red, SBL
TS	Tree sparrow	*Passer montanus*	1	0	Red, UKBAP, SBL
WH	Whitethroat	*Curruca communis*	3	1	Amber
WW	Willow warbler	*Phylloscopus trochilus*	7	4	Amber
WP	Woodpigeon	*Columba palumbus*	69	5	Amber
WR	Wren	*Troglodytes troglodytes*	10	8	Amber
Y.	Yellowhammer	*Emberiza citrinella*	38	11	Red, UKBAP, SBL

Species accounts

Dunnock

3.2.3 Dunnock was recorded in small numbers on two of the site visits, along woodland boundaries and hedgerows within the survey area. Dunnocks are a widespread species across lowland UK, primarily using hedgerows, woodland edges, and occasionally urban gardens/parks.

Grey partridge

3.2.4 A single grey partridge was recorded during the site visits, on the edge of an agricultural field south of the A90 carriageway. This indicates that at least one breeding territory is present within the survey area, though it is likely that this is an underestimate due to the availability of suitable breeding habitat. The sighting was in line with typical grey partridge habitat, as they are primarily birds of grassland and agricultural land. Grey partridges have suffered severe declines since 1970, due to loss of habitat and agricultural intensification (Ref 17).

House sparrow

3.2.5 House sparrow was recorded in moderate numbers on the majority site visits. The largest congregations were around the Mains of Newton Farm along Transect 1 and a property south of the A90 along Frain Drive. Small breeding populations are likely to be present at both locations. House sparrows are a nationally declining species with severe population declines since 1970. They can be found across towns and cities and also smaller villages throughout more rural areas.

Lesser redpoll

3.2.6 A singing lesser redpoll was recorded near the edge of Denlethen Wood on the April survey visit, indicating the presence of a territory. This small finch is found across the UK on moorland edges, in woodlands and gardens and is Red listed due to a sharp population decline since 1970.

Mallard

3.2.7 Mallards are a widespread and ubiquitous species of duck that inhabit a broad range of wetland habitats. Small numbers of mallard were observed on most site visits at the small pond associated with Mains of Newton Farm, south of the A90 carriageway along Transect 1. On the June site visit, a female mallard with ten juveniles was recorded, confirming at least one successful breeding territory.

Moorhen

3.2.8 Moorhen was recorded in small numbers across the majority of site visits, at the pond associated with Mains of Newton Farm. At least one pair was thought to be present. This rail species inhabits small ponds, lakes, and slow-moving watercourses, and is distributed widely across the UK.

Rook

3.2.9 Rooks were recorded throughout the surveys, with a peak count of 35 in June. This corvid primarily inhabits farmland, and breeds in colonies called rookeries, typically in large trees. A sizeable rookery was identified within an area of woodland south of Frain Drive, along Transect 1, though this was outside of the survey area.

Skylark

3.2.10 Skylark was widely recorded during the site visits, particularly during the first three where numbers peaked at 30. Territorial birds, including singing males and pairs, were recorded in agricultural fields mainly to the south of the A90. An estimate of 23 territories was made based on the distribution of singing skylark across the site visits. Skylark have shown strong declines since 1970, due to loss of habitat and intensification of agriculture.

Song thrush

3.2.11 Song thrush can be found across lowland UK, particularly in woodland. Song thrushes were observed across most site visits in small numbers, primarily along hedgerows, woodland edges, and tree lines within the survey area. When singing, song thrushes were conspicuous, allowing a confident estimate of territory number.

Whitethroat

3.2.12 Whitethroats are small warblers that visit the UK during the summer months, over-wintering in sub-Saharan Africa. They are widely distributed and breed in a range of scrub/wooded habitats. Within the survey area, small numbers were recorded during site visits, mainly utilising the hedgerows to the south of the A90.

Willow warbler

3.2.13 The commonest warbler recorded during the site visits, with a peak count of seven made in May. Willow warblers are sub-Saharan migrants, arriving in the UK in April to breed. They are commonest further north and are experiencing strong declines in the south of the UK. Within the survey area, territories were established mainly around the edges of small woodland pockets and tree lines, to both the north and south of the A90.

Woodpigeon

3.2.14 Woodpigeons are large, conspicuous members of the pigeon family that are widespread and common across the UK. They can be found in a wide range of habitats including farmland, woodland, gardens, and urban environments. During the site visits, they were recorded in large numbers across all visits, though the majority were over-flying or non-breeding flocks. Several territories were recorded in woodland edges, tree lines and hedgerows within the survey area.

Wren

3.2.15 Wren is the commonest breeding species in the UK and is abundant across woodland, scrub and garden habitats. They were recorded in moderate numbers across all site visits, mainly along woodland and hedgerow edges and not within agricultural fields. The majority of recordings were of singing males defending territory.

Yellowhammer

3.2.16 Yellowhammer is a distinctive bunting species found across the majority of the UK. They are primarily birds of agricultural land, though can also be found in scrub and grassland habitats. Yellowhammers were widely recorded along agricultural field margins to the north and south of the A90 and held a large number of territories. They are a declining species within the UK.

Other species

3.2.17 Other notable species were recorded during the site visits that did not show evidence of breeding. These included: black-headed gull, herring gull, oystercatcher, redacted schedule 1 species, sparrowhawk, kestrel, starling, swift, house martin, greenfinch, linnet, siskin and tree sparrow.

3.2.18 Barn owl was not recorded during the site visits, nor was this species recorded during the previous site surveys in 2017-18. However, there are desk study records of barn owl from 1km grid squares at the western extents of the scheme, in the vicinity of Oatyhill and Denlethen Wood.

3.2.19 The internal inspection of the farm buildings at Oatyhill confirmed they are suitable to support active roost sites and potential nest sites for barn owl (Ref 18). The buildings are undisturbed (being used for timber storage) with suitable access points, timber beams and dry wall tops that could be used for roosting. Raised wooden platforms in one of the buildings could not be safely accessed from ground level but had potential to be used for nesting. No conclusive evidence of barn owl, such as feathers or pellets, was found during the inspection although piles of bird feathers on the floor of the main building was indicative of recent raptor predation.

3.2.20 Other agricultural buildings within the survey area, for example those at Mains of Newton Farm, were noted to be large open sheds of modern construction with very few features that could support barn owl.

3.3. Wintering Birds

3.3.1 A total of 41 bird species were recorded within the survey area during the surveys, of which 21 are notable bird species. These included:

- One species designated under Schedule 1: REDACTED.
- Ten BoCC Red listed species: linnet, skylark, yellowhammer, starling, herring gull, REDACTED schedule 1 species, house sparrow, mistle thrush *Turdus viscivorus*, grey partridge and greenfinch.

- Ten BoCC Amber listed species: woodpigeon, pink-footed goose *Anser brachyrhynchus*, wren, mallard, bullfinch *Pyrrhula pyrrhula*, song thrush, dunnock, grey wagtail *Motacilla cinerea*, kestrel and rook.
- Eleven species on the SBL: house sparrow, skylark, yellowhammer, herring gull, song thrush, starling, linnet, grey partridge, bullfinch, dunnock and siskin.
- Ten species listed on the UK BAP: house sparrow, skylark, yellowhammer, herring gull, song thrush, starling, linnet, grey partridge, bullfinch and dunnock.
- A further 20 Green listed species were recorded during the surveys. These are detailed in Appendix C.

3.3.2 A summary of the notable bird species is given below in Table 8, which provides the peak counts of each species recorded across all transect visits. The locations of notable bird species recorded during the surveys are shown in Figures 9.2a and 9.2b.

Table 8: Wintering birds survey results

BTO SPECIES CODE	COMMON NAME	SCIENTIFIC NAME	PEAK COUNT	CONSERVATION STATUS
BF	Bullfinch	*Pyrrhula pyrrhula*	3	Amber, UKBAP, SBL
D.	Dunnock	*Prunella modularis*	2	Amber, UKBAP, SBL
	REDACTED		80	Red, Schedule 1
GR	Greenfinch	*Chloris chloris*	4	Red
P.	Grey partridge	*Perdix perdix*	11	Red, UKBAP, SBL
GL	Grey wagtail	*Motacilla cinerea*	1	Amber
HG	Herring gull	*Larus argentatus*	183	Red, UKBAP, SBL
HS	House sparrow	*Passer domesticus*	15	Red, UKBAP, SBL
K.	Kestrel	*Falco tinnunculus*	1	Amber
LI	Linnet	*Carduelis cannabina*	8	Red, UKBAP, SBL
MA	Mallard	*Anas platyrhynchos*	4	Amber
M.	Mistle thrush	*Turdus viscivorus*	12	Red
PG	Pink-footed goose	*Anser brachyrhynchus*	27	Amber
RO	Rook	*Corvus frugilegus*	1	Amber
SK	Siskin	*Spinus spinus*	2	Green, SBL
S.	Skylark	*Alauda arvensis*	11	Red, UKBAP, SBL
SG	Starling	*Sturnus vulgaris*	6	Red, UKBAP, SBL
ST	Song thrush	*Turdus philomelos*	3	Amber, UKBAP, SBL
WP	Woodpigeon	*Columba palumbus*	119	Amber
WR	Wren	*Troglodytes troglodytes*	5	Amber
Y.	Yellowhammer	*Emberiza citrinella*	20	Red, UKBAP, SBL

Species accounts

Bullfinch

3.3.3 Bullfinch is a widespread species across the UK, primarily inhabiting woodland, hedgerows and often gardens. In winter, bullfinches often congregate in small groups. Three individuals were recorded on the February site visit at the edge of a woodland strip to the south of the A90, along Transect 1.

Dunnock

3.3.4 Dunnock was recorded in small numbers across both site visits, along woodland boundaries and hedgerows within the survey area. Dunnock is a widespread species across lowland UK, primarily found in hedgerows, woodland edges, and occasionally urban gardens/parks.

Greenfinch

3.3.5 Greenfinch was recorded on the February site visit, with a small flock of four being recorded near a wooded area adjacent to houses along Frain Drive, just north of the A90 carriageway. Greenfinch is a widespread finch species that can be found in farmland, woodland edges and hedgerows across the UK. It has suffered considerable declines in recent years, primarily due to the disease *Trichomonas gallinae*.

Grey partridge

3.3.6 Reasonable numbers of grey partridge were recorded across both site visits, with a peak count of 11 on the February visit. They were observed along agricultural field margins and hedgerow borders south of the A90 carriageway. This is typical grey partridge habitat, as they are primarily birds of grassland and farmland.

Grey wagtail

3.3.7 A single grey wagtail was recorded during the surveys, along Transect 1 in February. This individual was utilising a small boundary ditch. Grey wagtails are widespread across the UK and are closely tied to water. Fast-flowing streams are their primary habitat in the breeding season, although they use more varied habitats in winter including ditches, flooded fields, canals and lakesides.

Herring gull

3.3.8 Herring gull was the only gull species recorded on the site visits. Herring gulls can be observed in the UK all year round particularly on inland sites such as farmland, however they have suffered moderate declines over the past 25 years. The highest count was 183 on the March site visit, which mostly comprised of birds passing over in flight, with smaller numbers roosting and foraging on arable fields within the survey area.

House sparrow

3.3.9 House sparrow was recorded in moderate numbers on both site visits. The majority were recorded in small flocks around the Mains of Newton Farm along Transect 1.

Kestrel

3.3.10 Kestrels are medium-sized falcon species that inhabit farmland and grassland habitats. They feed primarily on small mammals such as mice and voles. The UK population of kestrels has shown a moderate decline in recent decades. Only a single kestrel was recorded during the surveys, flying overhead during Transect 1 in February.

Linnet

3.3.11 Linnets were recorded on the March site visit. A flock of eight were observed on arable land north of the A90 along Transect 2. This species is primarily an inhabitant of farmland, grassland and scrub. In winter large flocks often gather in arable agricultural habitats, particularly set asides. Linnets have experienced considerable population declines in recent decades.

Mallard

3.3.12 Small numbers of mallard were observed on the March site visit at the small pond associated with Mains of Newton Farm, south of the A90 carriageway.

Mistle thrush

3.3.13 Mistle thrush is a widespread but declining species found across most of lowland UK. It can be found in a wide range of habitats including woodland edges, grassland, farmland and gardens. It is particularly conspicuous on playing fields. Mistle thrushes were recorded on both site visits. The highest count was a flock of 12 recorded in March within an agricultural field south of the A90, along Transect 1.

Pink-footed goose

3.3.14 No geese were recorded on the ground, with the only observation being a skein of 27 that flew overhead northwards on the February site visit. Pink-footed geese are only found in the UK during winter months. Birds that nest in Greenland and Iceland spend the winter in Scotland, north-west England and East Anglia.

Rook

3.3.15 A single rook was recorded flying over Transect 1 on the March site visit. Rooks are large corvids that are specialised for farmland habitats. The rook population is widely distributed across the country, though the population is showing evidence of decline.

Siskin

3.3.16 Siskin are small finches primarily found in Scotland, Wales and northern England. Their preferred habitat is coniferous woodland, though they may also be found in deciduous woodland. Large flocks can accumulate in winter, often in the company of other finch species. Only two siskins were recorded during the site visits, both overflying individuals on the March visit.

Skylark

3.3.17 Skylarks were widely recorded during the site visits and were strongly associated with arable land across the survey area. Birds were starting to establish territories on the March visit. Skylark have shown strong declines since 1970, due to loss of habitat and intensification of agriculture.

Song thrush

3.3.18 Song thrushes were observed across both site visits in small numbers, primarily along hedgerows, woodland edges and tree lines. Song thrushes can be found in the UK all year round but gather in larger numbers during autumn and winter. They are regularly recorded on farmland and are nationally declining.

Starling

3.3.19 Starling was not widely recorded. The only observation was a small group of six within arable fields along Transect 1 on the February site visit. Starling is a widespread and ubiquitous species in the UK, known to congregate on lowland arable land and within urban areas during the winter, occurring everywhere except for the highest parts of the Scottish Highlands.

Woodpigeon

3.3.20 Large flocks of woodpigeon can congregate on agricultural land in winter. This species was recorded in large numbers across both site visits, particularly on agricultural fields, with smaller numbers overflying and using woodland and hedgerows.

Wren

3.3.21 Wrens were recorded in moderate numbers across both site visits, mainly along woodland and hedgerow edges both to the north and south of the A90, though not within agricultural fields.

Yellowhammer

3.3.22 As with the skylark, yellowhammers were widely recorded within and overflying arable land to the north and south of the A90 on both visits. They are a declining species within the UK.

3.4. Red Squirrel

3.4.1 During previous hair tube surveys undertaken in 2017 there was one recorded red squirrel hair within the woodland at Gaugers Burn to the north of the existing A90 (see Figure 10.6 in the Stage 3 EIAR Volume 3).

3.4.2 In March 2022, a potential red squirrel drey was identified Squirrel feeding remains were found immediately below the potential drey, and throughout the area.

3.4.3 Several red squirrel sightings were made during other species survey transects of the surrounding area.This confirms that red squirrels are still active in the local area.

3.5. Badger

3.5.1 Within the survey area, four active setts were identified (Table 9). The locations of the badger setts and other recorded field signs are shown in Figure 9.3 (Redacted).

Table 9: Badger survey results

SETT TYPE	DESCRIPTION	ACTIVITY
Main (Sett A)	1 main sett identified with seven entrances. Three well-used and four partially used.	Large, fresh spoil heaps. Well-worn paths. Footprints in spoil. Old bedding.
Annex (Sett B)	Located approximately 30m from the main sett with three entrances. Two well used and one partially used.	Large, fresh spoil heaps. Worn paths. Latrine with fresh droppings.
Subsidiary (Sett C)	Located approximately 100m from the main sett with five entrances. Two well used and three partially used.	Fresh spoil and old bedding.
Subsidiary (Sett D)	Also located approximately 100m from the main sett with four entrances. Two well used and two partially used.	Fresh spoil. Juvenile badger skull. Fresh droppings outside one entrance.

3.5.2 Other small dung pits and snuffle signs were identified throughout the survey extents. Paths were also identified from Setts C & D under fencing. Snuffle holes were also identified. Further fresh droppings were found within a dung pit on the opposite side of the A90 within an area of open grassland. Badger prints and a dung pit were also found at nearby field entrances and margins during the bird survey work in 2023. Photographs of some of these badger field signs are included in Appendix A.

3.5.3 Previously, an outlier sett had been identified in an area to the south of the survey area. Surveyors attempted to re-visit this sett however the route taken did not allow for access to the sett, due to a deep and sloped trench. However, badger prints were identified in tilled soil in the field adjacent to the trench.

3.5.4 Two further outlier setts were identified when surveying watercourses. One disused, which appeared to have slightly collapsed, and a second with one entrance and a small spoil heap with some old bedding – likely only partially used.

3.6. Otter and Water Vole

3.6.1 The otter and water vole survey included three watercourses (labelled A – C), some of which share connectivity flowing east to west into Luther Water. Otter are known to be present on Luther Water – due to being observed in the water course in 2017 by Amey surveyors.

The results of the 2022 surveys are summarised in Table 10. Photographs of field signs recorded during the survey are included in Appendix A.

Table 10: Otter and water vole survey results

WATERCOURSE	EVIDENCE		COMMENTS
	OTTER	WATER VOLE	
A	No evidence	No evidence	High farm pollution run off. Majority of the burn very shallow.
B	Spraint 3 potential resting places	Three burrows (two in close proximity) Feeding signs	Old remains of spraint found on a rock towards the A937 bridge over Gaugers Burn.

C	3 potential resting places	4 burrows found throughout the watercourse	Sections of this waterway could not be fully surveyed due to large fallen trees and very steep slopes.

3.6.2 Otter presence was confirmed on Gaugers Burn, which runs through the middle of the survey area immediately to the east of the proposed junction improvements. Large cuts of rushes at a 45-degree angle, indicative of water vole feeding signs, were also identified along Gaugers Burn along with several small mammal burrows. However, there were no droppings, latrines or other evidence of recent water vole activity to reliably confirm the presence of this species on the watercourses surveyed (Ref 13). Feeding signs indicative of field vole *Microtus agrestis* were also found throughout the survey area and it is possible that all the vole feeding signs recorded belonged to this species.

3.7. Bats

3.7.1 Four species of bat were recorded during the activity survey: common pipistrelle, soprano pipistrelle, brown long-eared bat *Plecotus auritus* and a Myotis sp. Pipistrelle bats were widely recorded across the survey area, whereas the other species were only recorded once each during the surveys.

3.7.2 Figures 9.5a, b, c, d, e, f, g and h show the walked transect routes and the locations where bat activity was observed during the survey visits, as well as the number of passes recorded for each species.

3.7.3 Bats were recorded along most linear features throughout the survey area, including tree lines, woodland edges and the railway line. The highest areas of bat activity were around woodlands including Denlethen Wood and in proximity to Gaugers Burn and the other watercourses, which provide suitable foraging and commuting habitat. Levels of bat activity were low across the wider survey area, which is characterised by open arable farmland of limited value to foraging and commuting bats.

3.7.4 Typical emergence times for both species of pipistrelle is approximately 30 minutes after sunset (expected for an ‘earlier emerging species’), likely indicating that there are roosts close by.

3.7.5 A noticeable drop in activity levels was noted on transect route 1 during the autumn survey.

3.8. Other Mammals

3.8.1 The priority species brown hare *Lepus europaeus* was incidentally recorded on arable fields to the south and east of the existing junction during the breeding bird survey. Roe deer *Capreolus capreolus* were also occasionally spotted by surveyors in this area.

4. Summary and Conclusions

4.1. Designated Sites

4.1.1 No sites designated for birds, bats or other protected species are present within the desk study area. One site designated for its grassland and wetland habitats (West Bradieston and Craig of Garvock SSSI) is present at the edge of the study area and outside the ZoI of the proposed scheme.

4.2. Breeding Birds

4.2.1 The field surveys confirmed that the survey area is widely used by breeding birds. There were records of 27 notable bird species across the site visits, including 13 species holding territories within the survey area. There was no evidence of breeding by any Schedule 1 bird species. Breeding bird activity was largely concentrated around field boundaries, particularly hedgerows and tree lines, and woodlands to both the north and south of the A90 within the survey area. Contrastingly, the agricultural fields, particularly to the south of the A90, contained relatively few breeding bird species, though they did support an important farmland bird community with good numbers of skylark and yellowhammer, and low numbers of grey partridge. Waterfowl were recorded infrequently and in low numbers, largely restricted to the small farm pond at Mains of Newton Farm.

4.2.2 The numbers and species of birds recorded within the study area were generally typical of the habitats present. While high populations of some farmland species were recorded, notably skylark and yellowhammer, they are

unlikely to be reliant exclusively on breeding habitats within the survey area due to these habitats being very common within the wider landscape. Most of the species recorded are of site or local importance due to being common and widespread species throughout the region and/or UK, in common with the findings of the previous breeding bird surveys at Laurencekirk.

4.2.3 Barn owl was not recorded during the bird surveys. However, the study area does contain suitable roosting, nesting and foraging habitat to support barn owl including farm buildings at Oatyhill and nearby field margins.

4.3. Wintering Birds

4.3.1 The field surveys confirmed that the survey area is widely used by wintering birds. Bird activity was generally concentrated along field boundaries, where trees and hedgerows are present and these habitats provide suitable foraging resources for a range of wintering birds including a Schedule 1 listed species. The agricultural and stubble fields generally supported fewer species, though they did contain flocks of farmland and other notable bird species such as skylark, yellowhammer, grey partridge, herring gull and mistle thrush in the winter. Waterfowl were recorded infrequently and in very low numbers.

4.3.2 As with the breeding surveys, the numbers and species of birds recorded in winter were typical of the habitats present in the study area and wider area. In general, the species observed were unlikely to be solely reliant on the arable farmland and woodland habitats within the study area, due to these habitats being very common within the wider landscape. The majority of the species recorded are of local importance to the study area, in common with the findings of the previous wintering bird surveys.

4.4. Red Squirrel

4.4.1 Red squirrels have been recorded using the woodland along Gaugers Burn to the north of the existing A90 and in Denlethen Wood. A drey was identified, although its use by red or grey squirrel *Sciurus carolinensis* cannot be confirmed. However, grey squirrels have not been observed during any site surveys at Laurencekirk and coniferous woodlands within the study area are known to support red squirrel populations. Further surveys to search for active red squirrel dreys are not deemed necessary unless woodland clearance is required as part of the new junction scheme.

4.5. Badger

4.5.1 Badgers are highly active in the area, and field evidence shows that they forage and commute throughout the surrounding farmland in proximity to the A90 carriageway. New, active setts have been recorded in the area.

4.5.2 A further pre-construction survey will be required to inform final mitigation design, licensing and monitoring requirements for this species once the scheme has achieved planning consent. The pre-construction survey area should include the corner of Denlethen Wood closest to the Access to Oatyhill part of the scheme to confirm whether badgers are active in that part of the study area.

4.6. Otter

4.6.1 Evidence of sprainting at Gaugers Burn (watercourse B) indicates that this watercourse forms part of an otter territory. Otters may use the watercourses in the study area for commuting and occasional forage within the wider catchment of the Luther Water. No evidence of holts or resting sites was noted within proximity to the junction improvement scheme.

4.7. Water Vole

4.7.1 Feeding signs indicative of water vole were recorded on Gaugers Burn; however, the presence of this species within the survey area could not be confirmed in the absence of other characteristic signs such as droppings. Other vole species are active in the area and can also leave piles of cut vegetation along watercourses that can be difficult to reliably distinguish from water vole feeding stations when other evidence is lacking.

4.7.2 Considering the negative results of previous surveys and lack of water vole records within the study area, this species is likely absent from the survey area, although the riparian habitat generally remains suitable for

colonisation. A pre-construction survey will be necessary to confirm the presence or likely absence of water vole on Gaugers Burn, which lies immediately to the east of the proposed junction improvement, should the scheme impact on the banks of this watercourse.

4.8. Bats

4.8.1 No bat roosts have been identified within the survey area, although desk study records indicate the presence of pipistrelle roosts within the wider area.

4.8.2 The transect surveys confirmed that bats remain active across the study area. Four species were recorded (common and soprano pipistrelle, brown long-eared bat and a Myotis species) with nearly all the activity attributable to pipistrelle bats commuting and foraging along linear features including tree lines, woodland edges, watercourses and the railway line around the Oatyhill rail overbridge.

4.8.3 Low levels of bat activity were recorded across the wider landscape of open arable farmland.

4.8.4 The existing Oatyhill rail overbridge will be retained as part of the scheme design and is not expected to be directly impacted by construction of the proposed new access overbridge to the south. If alterations to the existing overbridge become required, then targeted pre-construction bat surveys with access to the railway will be necessary to determine the presence or likely absence of a bat roost(s) in this structure and any further mitigation and licensing requirements.

4.9. Other Mammals

4.9.1 Brown hares were observed using arable fields and margins within the study area, including around the existing A90/A937 junction.

4.9.2 The desk study yielded records of other priority species – pine marten and hedgehog – largely in association with Denlethen Wood, which will not be directly impacted by the scheme.

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Appendix A: Photographs

Photograph 1: Farm buildings at Oatyhill with barn owl potential

Photograph 2: Red squirrel and feeder at Denlethen Wood

Photograph 3: Active badger sett entrance with spoil pile

Photograph 4: Badger dung pit

Photograph 5: Juvenile badger skull

Photograph 6: Fresh badger footprints

Photograph 7: Otter spraint

Photograph 8: Gaugers Burn, one of the watercourses surveyed

Photograph 9: Vole feeding signs

Photograph 10: Small mammal burrow

Appendix B: Species observed during breeding bird surveys

Date of Survey		22/04/2022	20/05/2022	10/06/2022	06/07/2022	Peak Count
Transect		1 & 2	1 & 2	1 & 2	1 & 2 (dusk)	
Species	BoCC Listing					
Herring gull	Red	37	13	71	2	71
Yellowhammer	Red	26	16	38	15	38
Skylark	Red	30	25	29	1	30
Swift	Red				29	29
House sparrow	Red	17	15	5		17
House martin	Red		11	2	11	11
Starling	Red		4	6		6
Linnet	Red		5		2	5
Greenfinch	Red	4				4
Grey partridge	Red			1		1
Tree sparrow	Red		1			1
Lesser redpoll	Red	1				1
Woodpigeon	Amber	55	69	31	34	69
Rook	Amber	33	6	35	2	35
Mallard	Amber	1		13	1	13
Wren	Amber	6	7	10	8	10
Willow warbler	Amber	3	7	4		7
Song thrush	Amber	1	3	1		3
Whitethroat	Amber		3	2	2	3
Dunnock	Amber	2		1		2
Oystercatcher	Amber		2			2
Moorhen	Amber			2	1	2
Black-headed gull	Amber	1				1
Kestrel	Amber		1			1
Sparrowhawk	Amber		1			1
Jackdaw	Green	53	15	90	750	750
Carrion crow	Green	56	25	45	33	56
Swallow	Green	1	8	7	32	32
Feral pigeon	Green	25	4	22	12	25
Great tit	Green	5	5	22		22
Blackbird	Green	10	16	7	1	16
Blue tit	Green	13	5	6	1	13
Robin	Green	10	4	3	2	10
Chaffinch	Green	7	5	6	3	7
Goldfinch	Green	2	7	7	9	9
Coal tit	Green	6	3			6
Chiffchaff	Green	3	6	3		6

Pied wagtail	Green	1	5	3	3	5
Siskin	Green		4			4
Goldcrest	Green	1	3	1		3
Buzzard	Green	1	2	3		3
Blackcap	Green	2	1	1	2	2
Grey heron	Green	1		2		2
Collared dove	Green		1	1		1
REDACTED Schedule 1 species	Green		1		1	1
Great spotted woodpecker	Green		1			1

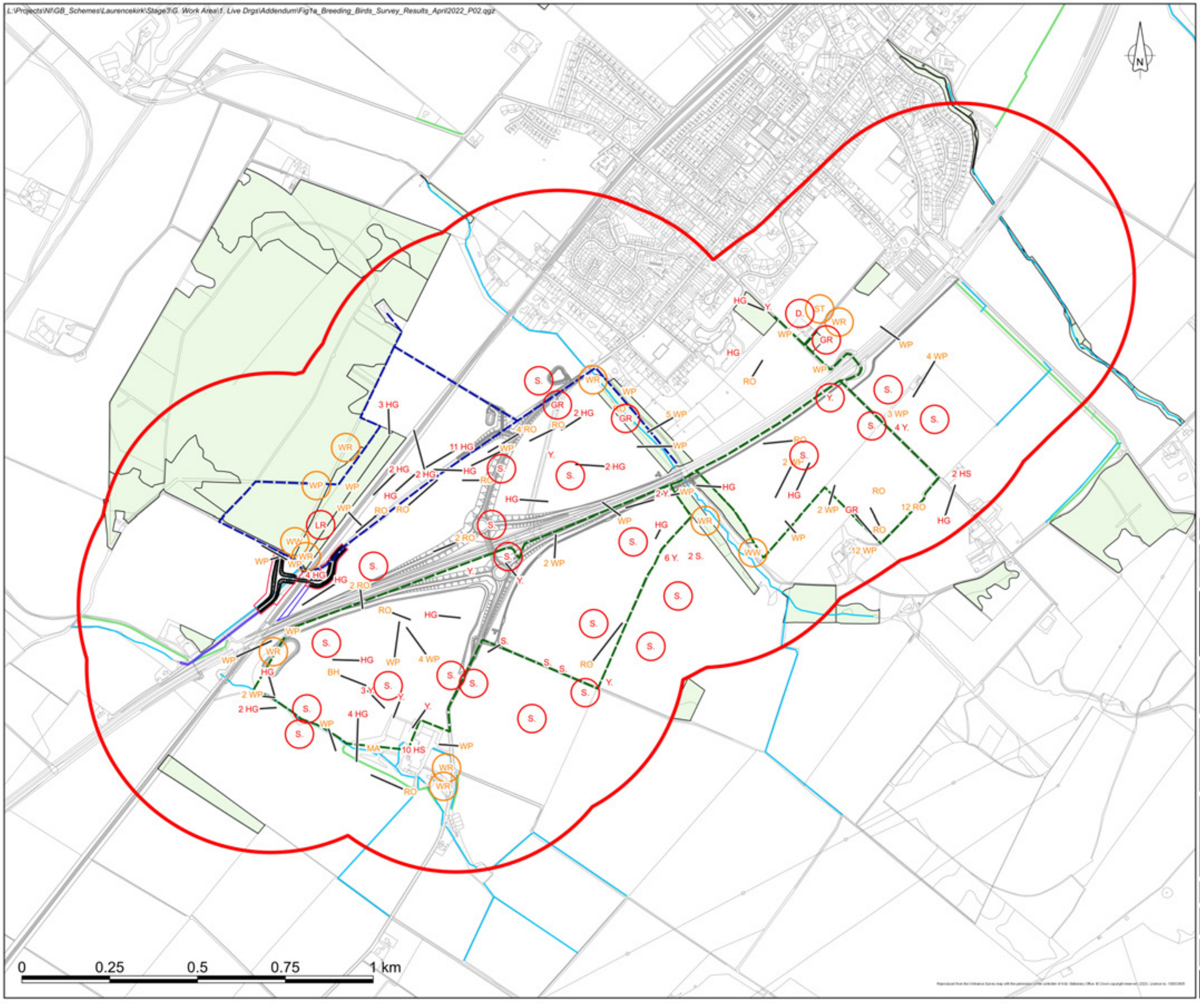
Appendix C: Species observed during wintering bird surveys

Date of Survey		08-09/02/22	08-09/03/22	Peak Count
Transect		1 & 2	1 & 2	
Species	BoCC Listing			
Herring gull	Red	183	31	183
REDACTED schedule 1 species	Red	33		33
Yellowhammer	Red	20	17	20
House sparrow	Red	15	15	15
Mistle thrush	Red	12	1	12
Skylark	Red	5	11	11
Grey partridge	Red	9	2	9
Linnet	Red		8	8
Starling	Red	6		6
Greenfinch	Red	4		4
Woodpigeon	Amber	113	119	119
Pink-footed goose	Amber	27		27
Wren	Amber	3	5	5
Mallard	Amber		4	4
Bullfinch	Amber	3		3
Song thrush	Amber	1	3	3
Dunnock	Amber	2	2	2
Grey wagtail	Amber	1		1
Kestrel	Amber	1		1
Rook	Amber		1	1
Jackdaw	Green	90	203	203
Feral pigeon	Green	157	85	157
Carrion crow	Green	47	37	47
Goldfinch	Green	27	22	27
Blue tit	Green	21	10	21
Great tit	Green	21	11	21
Chaffinch	Green	10	10	10
Coal tit	Green	6	10	10
Long-tailed tit	Green	3	10	10
Blackbird	Green	8	7	8
Robin	Green	5	8	8
Buzzard	Green	7	1	7
Pied wagtail	Green	7	7	7
Goldcrest	Green	2	3	3
Great spotted woodpecker	Green	1	3	3
Magpie	Green	2	1	2
Treecreeper	Green		2	2

Siskin	Green		2	2
Collared dove	Green		2	2
Pheasant	Green	1		1
Blackcap	Green		1	1

Appendix E: Biodiversity: Biodiversity PSSR Figures

L:\Projects\NI\GB_Schemes\Laurencekirk\Stage3\G. Work Area\1. Live Drgs\Addendum\Fig1a_Breeding_Birds_Survey_Results_April2022_P02.qgz



Legend

- Access to Oatyhill
- Laurencekirk Junction
- 500m Buffer
- Woodland and Scrub
- Running Water
- Woodland and Scrub
- Transect 1
- Transect 2
- B — BoCC Amber Species
- B — BoCC Red Species
- B — Schedule 1 Species
- (B) — Singing Bird - BoCC Amber Species
- (B) — Singing Bird - BoCC Red Species
- Birds in Flight

BTO Species Codes and Designations

D.	Dunnock	RO	Rook
BH	Black-headed gull	S.	Skylark
GR	Greenfinch	ST	Song thrush
HG	Herring gull	WP	Woodpigeon
HS	House sparrow	WR	Wren
LR	Lesser redpoll	WW	Willow warbler
MA	Mallard	Y.	Yellowhammer

Rev	Revision Details	Drwn	Chkd	Appd	Date:

Designed:AHJ	Date: 12/12/2023
Drawn:ACT	Date: 14/12/2023
Checked: KF	Date: 15/12/2023
Approved : AW	Date: 18/12/2023

Amey

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Client : TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill - Laurencekirk Junction EIAR Addendum

Drawing Title :

Breeding Bird Survey Results - April 2022

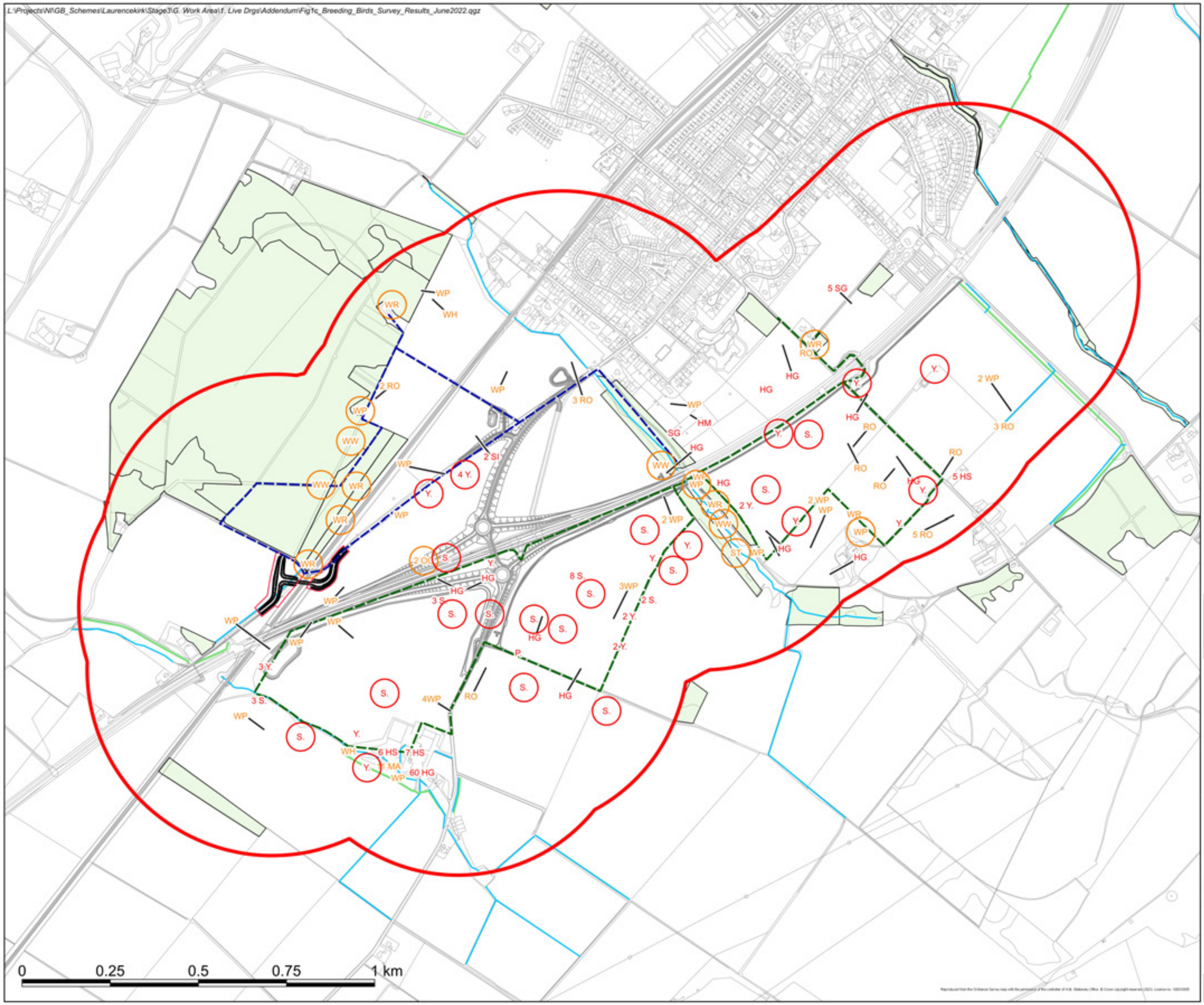
Original Drg Size : A3	Scale : 1:10,000
Dimensions :	Page: 1 of 1

Drawing Status : Suitable for Stage Approval	Suitability S4

Figure No : Figure 9.1a

Drawing No : -	Rev P01

L:\Projects\NI\GB_Schemes\Laurencekirk\Stage3\G. Work Area\f. Live Drgs\Addendum\Fig1c_Breeding_Birds_Survey_Results_June2022.qgz



Legend

- Access to Oatyhill
- Laurencekirk Junction
- 500m Buffer
- Woodland and Scrub
- Running Water
- Woodland and Scrub
- Transect 1
- Transect 2
- B BoCC Amber Species
- B BoCC Red Species
- B Schedule 1 Species
- (B) Singing Bird - BoCC Red Species
- (B) Singing Bird - BoCC Amber Species
- Birds In Flight

BTO Species Codes and Designations

D.	Dunnock	SG	Starling
HG	Herring gull	ST	Song thrush
HM	House martin	WH	Whitethroat
HS	House sparrow	WP	Woodpigeon
MA	Mallard	WR	Wren
MH	Moorhen	WW	Willow warbler
RO	Rook	Y.	Yellowhammer
P.	Grey partridge		
S.	Skylark		

Rev	Revision Details	Drwn	Chkd	Appd	Date:

Designed:AHJ	Date: 12/12/2023
Drawn:ACT	Date: 14/12/2023
Checked: KF	Date: 15/12/2023
Approved : AW	Date: 18/12/2023

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Client : TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill - Laurencekirk Junction EIAR Addendum

Drawing Title :

Breeding Bird Survey Results - June 2022

Original Drg Size : A3	Scale : 1:10,000
Dimensions :	Page: 1 of 1

Drawing Status : Suitable for Stage Approval	Suitability S4

Figure No : Figure 9.1c

Drawing No : -	Rev P01

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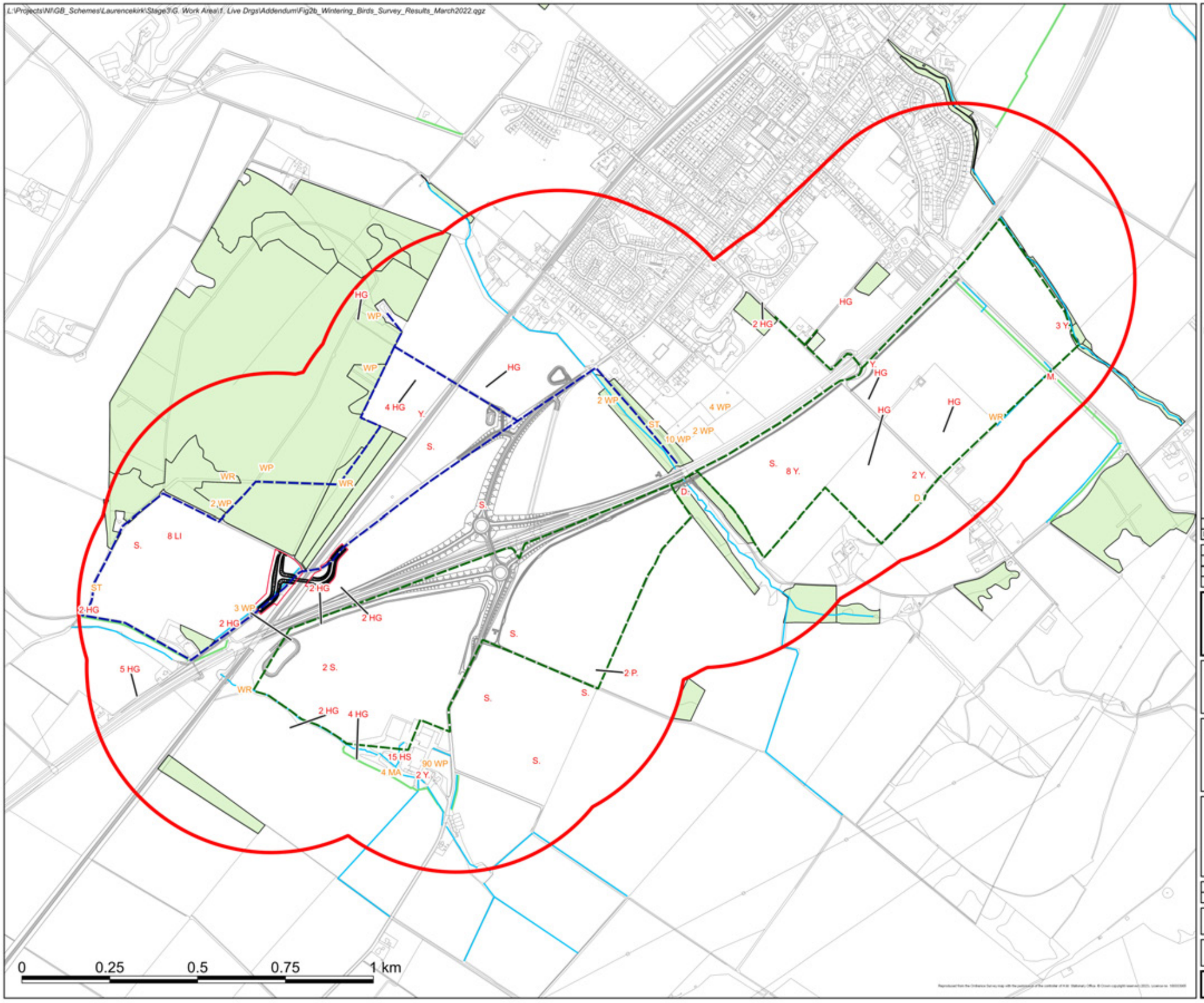

Legend

- Access to Oatyhill
- Laurencekirk Junction
- 500m Buffer
- Woodland and Scrub
- Running Water
- Woodland and Scrub
- Transect 1
- Transect 2
- B BoCC Amber Species
- B BoCC Red Species
- B Schedule 1 Species
- Birds in Flight

BTO Species Codes and Designations

D.	Dunnock	RO	Rook
HG	Herring gull	S.	Skylark
HS	House sparrow	ST	Song thrush
LI	Linnet	WP	Woodpigeon
M.	Mistle thrush	WR	Wren
MA	Mallard	Y.	Yellowhammer
P.	Grey partridge		

Rev	Revision Details	Drwn	Chkd	Appd	Date:

Designed: AHJ	Date: 12/12/2023
Drawn: ACT	Date: 14/12/2023
Checked: KF	Date: 15/12/2023
Approved: AW	Date: 18/12/2023

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Client : TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill - Laurencekirk Junction EIAR Addendum

Drawing Title :

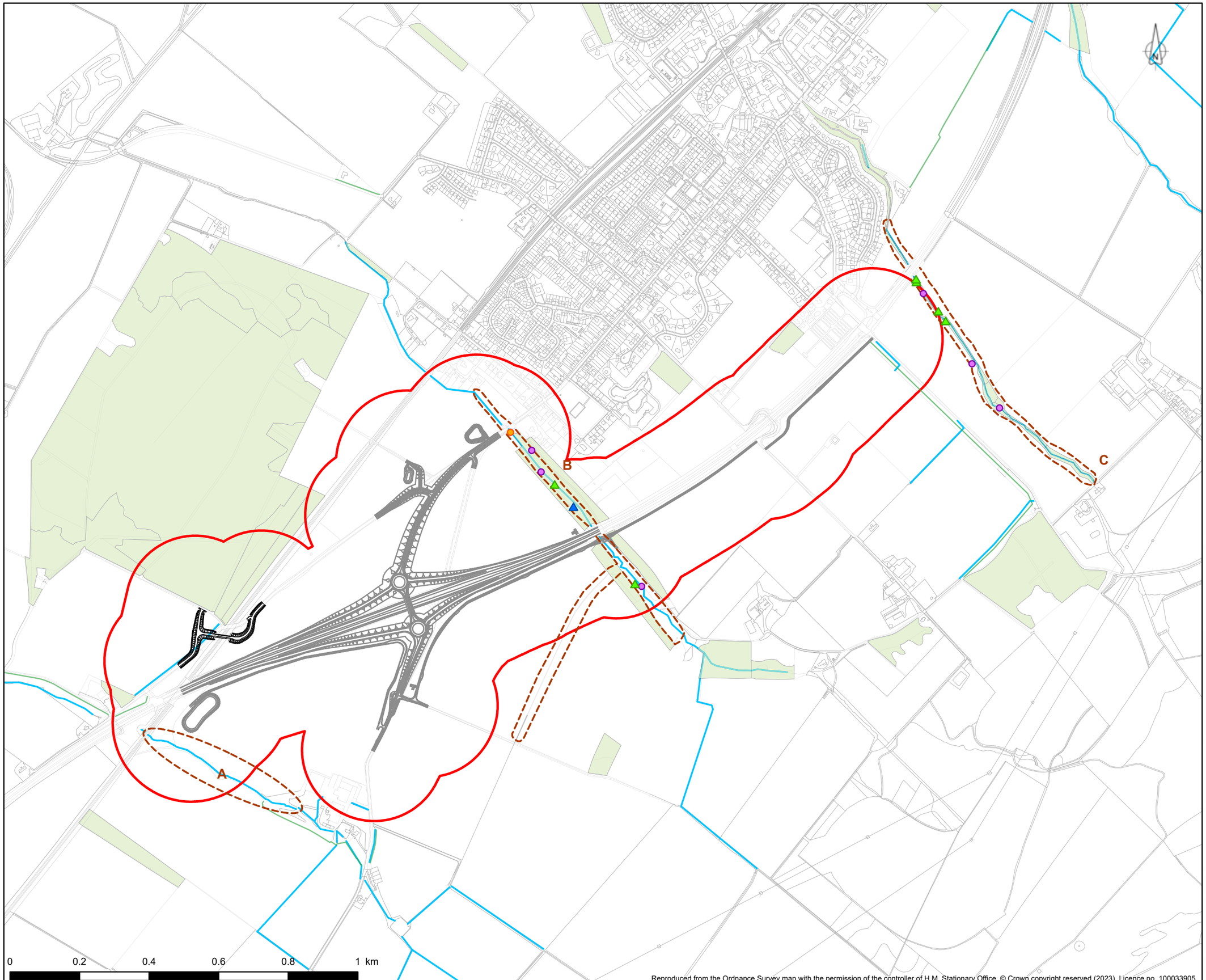
Wintering Bird Survey Results - March 2022

Original Drg Size : A3	Scale : 1:10,000
Dimensions :	Page: 1 of 1

Drawing Status : Suitable for Stage Approval	Suitability S4

Figure No : Figure 9.2b

Drawing No : -	Rev P01



Legend

- Access to Oatyhill
- Laurencekirk Junction
- 200m Buffer
- Survey areas
- Running water
- Woodland and Scrub
- Woodland and Scrub

Otter Field Sign

- Potential resting place
- Spraint

Water Vole Field Sign

- Potential burrow
- Feeding signs

Rev	Revision Details	Drwn	Chkd	Appd	Date

Designed:	AHJ	Date: 12/12/2023
Drawn:	ACT	Date: 14/12/2023
Checked:	SA	Date: 15/12/2023
Approved:	PW	Date: 18/12/2023

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Client : TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill - Laurencekirk Junction EIAR Addendum

Drawing Title :

Otter and Water Vole Survey

Original Drawing Size : A3	Scale : 1:10,000
Dimensions : -	**Page 1 of 1**

Drawing Status	Suitability
Suitable For Stage Approval	S4

Figure No
9.4

Drawing No	Rev
	P01

Legend

- Survey Walking Route
- Scheme Design
- Scheme Design 500m Buffer
- Soprano pipistrelle (Pipistrellus pygmaeus)
- Common pipistrelle (Pipistrellus pipistrellus)
- Brown long-eared bat (Plecotus auritus)

Please note: Numbers next to bat species indicate the number of bat passes recorded. If no number is shown next to a bat species then one pass was recorded.

Rev	Revision Details	Drwn	Chkd	Appd	Date:

Drawn: AC	Date: 14/03/2023
Checked: ACT	Date: 14/03/2023
Approved : KF	Date: 14/03/2023

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Client : TRANSPORT SCOTLAND COMHDHAIL ALBA

Project Name :

Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title :

Bat Activity Survey T1-1 (23/05/2022)

Original Drg Size : A3	Scale : 1:6,000
Dimensions :	Page : 1 of 1

Drawing Status : Suitable for Stage Approval	Suitability S4
Figure No : 9.5a	
Drawing No : -	Rev P01

Legend

- Survey Walking Route
- Scheme Design
- Scheme Design 500m Buffer
- Common pipistrelle (Pipistrellus pipistrellus)
- Soprano pipistrelle (Pipistrellus pygmaeus)

Please note: Numbers next to bat species indicate the number of bat passes recorded. If no number is shown next to a bat species then one pass was recorded.

Rev	Revision Details	Drwn	Chkd	Appd	Date:

Drawn: AC	Date: 14/03/2023
Checked: ACT	Date: 14/03/2023
Approved : KF	Date: 14/03/2023

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Client : TRANSPORT SCOTLAND CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title :

Bat Activity Survey T1-2 (28/07/2022)

Original Drg Size : A3	Scale : 1:6,000
Dimensions :	Page : 1 of 1

Drawing Status : Suitable for Stage Approval	Suitability S4
Figure No : 9.5b	
Drawing No : -	Rev P01

Legend

- Survey Walking Route
- Scheme Design
- Scheme Design 500m Buffer
- Soprano pipistrelle (Pipistrellus pygmaeus)

Please note: Numbers next to bat species indicate the number of bat passes recorded. If no number is shown next to a bat species then one pass was recorded.

Rev	Revision Details	Drwn	Chkd	Appd	Date:

Drawn: AC	Date: 14/03/2023
Checked: ACT	Date: 14/03/2023
Approved : KF	Date: 14/03/2023

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Client : TRANSPORT SCOTLAND CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title :

Bat Activity Survey T1-3 (30/08/2022)

Original Drg Size : A3	Scale : 1:6,000
Dimensions :	Page : 1 of 1

Drawing Status : Suitable for Stage Approval	Suitability S4
Figure No : 9.5c	
Drawing No : -	Rev P01

Legend

- Survey Walking Route
- Scheme Design
- Scheme Design 500m Buffer
- Soprano pipistrelle (Pipistrellus pygmaeus)
- Common pipistrelle (Pipistrellus pipistrellus)

Please note: Numbers next to bat species indicate the number of bat passes recorded. If no number is shown next to a bat species then one pass was recorded.

Rev	Revision Details	Drwn	Chkd	Appd	Date:

Drawn: AC	Date: 14/03/2023
Checked: ACT	Date: 14/03/2023
Approved : KF	Date: 14/03/2023

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Client : TRANSPORT SCOTLAND CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title :

Bat Activity Survey T2-1 (24/05/2022)

Original Drg Size : A3	Scale : 1:6,000
Dimensions :	Page : 1 of 1

Drawing Status : Suitable for Stage Approval	Suitability S4
Figure No : 9.5d	
Drawing No : -	Rev P01

Legend

- Survey Walking Route
- Scheme Design
- Scheme Design 500m Buffer
- Soprano pipistrelle (Pipistrellus pygmaeus)
- Common pipistrelle (Pipistrellus pipistrellus)

Please note: Numbers next to bat species indicate the number of bat passes recorded. If no number is shown next to a bat species then one pass was recorded.

Rev	Revision Details	Drwn	Chkd	Appd	Date:

Drawn: AC	Date: 14/03/2023
Checked: ACT	Date: 14/03/2023
Approved : KF	Date: 14/03/2023

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Client : TRANSPORT SCOTLAND CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title :

Bat Activity Survey T2-2 (27/07/2022)

Original Drg Size : A3	Scale : 1:6,000
Dimensions :	Page : 1 of 1

Drawing Status : Suitable for Stage Approval	Suitability S4
Figure No : 9.5e	
Drawing No : -	Rev P01

Legend

- Survey Walking Route
- Scheme Design
- Scheme Design 500m Buffer
- Common pipistrelle (Pipistrellus pipistrellus)

Please note: Numbers next to bat species indicate the number of bat passes recorded. If no number is shown next to a bat species then one pass was recorded.

Rev	Revision Details	Drwn	Chkd	Appd	Date:

Drawn: AC	Date: 14/03/2023
Checked: ACT	Date: 14/03/2023
Approved : KF	Date: 14/03/2023

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Client : TRANSPORT SCOTLAND CÒMHDHAIL ALBA

Project Name :

Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title :

Bat Activity Survey T2-3 (29/08/2022)

Original Drg Size : A3	Scale : 1:6,000
Dimensions :	Page : 1 of 1

Drawing Status : Suitable for Stage Approval	Suitability S4
Figure No : 9.5f	
Drawing No : -	Rev P01

Legend

- Survey Walking Route
- Scheme Design
- Scheme Design 500m Buffer
- Common pipistrelle (Pipistrellus pipistrellus)
- Soprano pipistrelle (Pipistrellus pygmaeus)

Please note: Numbers next to bat species indicate the number of bat passes recorded. If no number is shown next to a bat species then one pass was recorded.

Rev	Revision Details	Drwn	Chkd	Appd	Date:

Drawn: AC	Date: 14/03/2023
Checked: ACT	Date: 14/03/2023
Approved : KF	Date: 14/03/2023

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Project Name :

Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title :

Bat Activity Survey T3-1 (24/05/2022)

Original Drg Size : A3	Scale : 1:6,000
Dimensions :	Page : 1 of 1

Drawing Status :	Suitability
Suitable for Stage Approval	S4

Figure No : 9.5g

Drawing No :	Rev
-	P01

Legend

- Scheme Design
- Scheme Design 500m Buffer
- Soprano pipistrelle (Pipistrellus pygmaeus)
- Common pipistrelle (Pipistrellus pipistrellus)
- Myotis species

Please note: Numbers next to bat species indicate the number of bat passes recorded. If no number is shown next to a bat species then one pass was recorded.

Rev	Revision Details	Drwn	Chkd	Appd	Date:

Drawn: AC	Date: 14/03/2023
Checked: ACT	Date: 14/03/2023
Approved : KF	Date: 14/03/2023

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Project Name :

Access to Oatyhill – Laurencekirk Junction EIAR Addendum

Drawing Title :

Bat Activity Survey T3-3 (30/08/2022)

Original Drg Size : A3	Scale : 1:6,000
Dimensions :	Page : 1 of 1

Drawing Status : Suitable for Stage Approval	Suitability S4
Figure No : 9.5h	
Drawing No : -	Rev P01